First Copy

FLEET OWNER

VOLUME 18
NUMBER 5 •
MAY, 1937

DEVOTED to the BETTER OPERATION and MAINTENANCE of all AUTOMOTIVE FLEETS

Illustrated—Seven new Reo Trucks recently added to the Cambridge, Mass., municipal fleet of 37 Reos. The new trucks are equipped with specially designed 8-yard steel ash-collection bodies.

HERE'S WHAT MAKES REO FLEETS GROW!

On-the-job performance records convince Reo owners that it pays to add Reo trucks exclusively when they need more equipment. Municipalities like Cambridge, Mass., find that Reo's tailored transportation makes employees' work easier, swifter, safer—with substantial savings in service and maintenance costs!

"I recommended the purchase of new Reo trucks," a high city official of Cambridge says, "because of the fine record of efficiency and low-upkeep costs made by the 37 Reo units which have been in the service of the street department during the past six years. They have done a fine job under all kinds of weather and road conditions."

Reo trucks are dependable—lasting! They're truck-built through and through. Reo's commercial transport engineers design Reo trucks with *your* problems in mind! There is a Reo to suit your hauling needs *exactly*. Ask your Reo dealer to tell you about the Performance Guarantee that protects each Reo owner and the new low prices that make today's Reo an even more amazing value than ever!

REO SPEEDWAGONS AND TRUCKS

Built and sold to Precision Standards. Ask your nearest Reo dealers to show you how the Reo Performance Gauge will insure the selection of exactly the right truck for your needs. Maximum economy is sure to result.

REO MOTOR CAR COMPANY, LANSING, MICH.

20,000 Copies of This Issue

2 of 7 bodies built of strong, light Alcoa Aluminum by A. C. Schodorf & Sons, Columbus, Ohio, for V. S. Campbell Transportation Service, Inc., Columbus, Ohio. Body Weight, 1250 lbs. Bonus Load, 1500 lbs.

Bonus Load is extra pay load made possible by removing dead weight from truck bodies; gross weight is not increased an ounce; operation cost is not raised a penny; in fact, it is lowered.

Specifically, you use a body built light and strong, from the strong, light alloys of Alcoa Aluminum, instead of a heavy body built with heavy materials.

Since gross weight is not increased, Bonus Load solves the problem of how to haul more pay load without exceeding legal load limits.

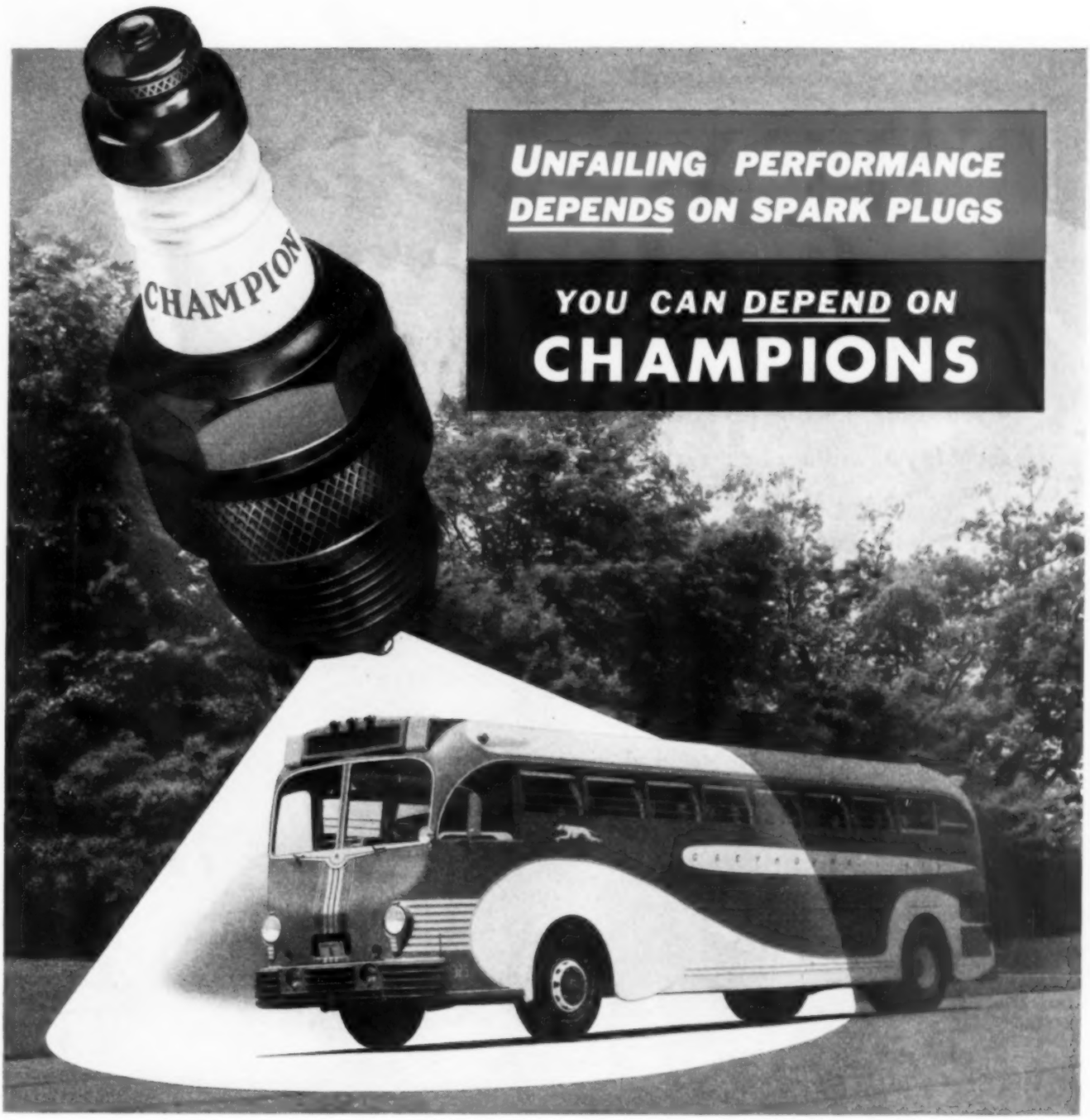
For the same reason, Bonus Load gives you extra profits. The extra load, carried in place of dead weight, does not increase operating cost. It goes free.

Such are the advantages enjoyed by V. S. Campbell Transportation Service from the ¾-ton Bonus Load on each of the truck bodies illustrated. In the photograph, you also see evidence of another gain: attractive appearance of the finish on non-rusting Aluminum is easy and economical to maintain.

There should be Bonus Load capacity in the next trucks you buy. Leading builders can supply the bodies built with special forms and shapes of Alcoa Aluminum which make light, strong construction easy and economical. Send for the free handbook, "*Alcoa Aluminum for Truck Bodies*," which tells the whole story. ALUMINUM COMPANY OF AMERICA, 2161 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA ALUMINUM

REG. U. S. PAT. OFFICE



To operate profitably, fleet owners must keep their equipment ready to roll at any and all times and under any and all conditions. Such unfailing performance depends to an extraordinary degree on spark plugs.

That you can depend on Champion Spark Plugs to give you this unfailing performance is illustrated by the performance record of the Pacific Greyhound lines.

From mountainous terrain to desert plateaus—across sunlit deserts of scorching heat, through Death Valley 300 feet below sea level, to sea-breeze swept highways—those are the rigorous routes the Pacific Greyhound Coaches travel and maintain strict schedules. All told their 388 coaches traveled 31,416,954 miles in 1936 and naturally they depended on Champions to give them trouble-free mileage as they have for seven consecutive years.

The Pacific Greyhound Lines are nationally famous as an efficient, dependable operation—and rely on Champions for unfailing performance. You can always depend on Champions—the spark plug champions use.

CHAMPION

EXTRA-RANGE SPARK PLUGS

CHECK AND CLEAN SPARK PLUGS WHEN YOU CHANGE OIL

THEY *Thrive*

THE more you demand of your fleet, the more it demands of the lubrication it gets. It can be proved that you can reduce overhauling expense, get far longer service between lay-ups in the shop, if you will use New Texaco Motor Oil.

New Texaco Motor Oil is treated with a new purifying agent . . . FURFURAL, which comes from oats, corn, wheat, cotton seed, sugar cane, etc., etc. During this Furfural Process, the Furfural passes down through the oil in a round vertical tank, carrying away the impurities that otherwise would be left in the oil.

Less-carefully refined oils contain tar, gum, sludge-forming elements that can stick valves and piston-rings, clog oil strainers, burn into hard carbon deposits.

Using New Texaco, your engines remain *clean* inside, efficient for thousands of extra miles.

You need do this less often, when you use Texaco MARFAK. *Marfak stays in front wheel bearings, shackles, steering connections . . . twice as long as ordinary grease. Tough, spongy film actually cushions entire chassis. Seals out road dirt and water, checks wear.*

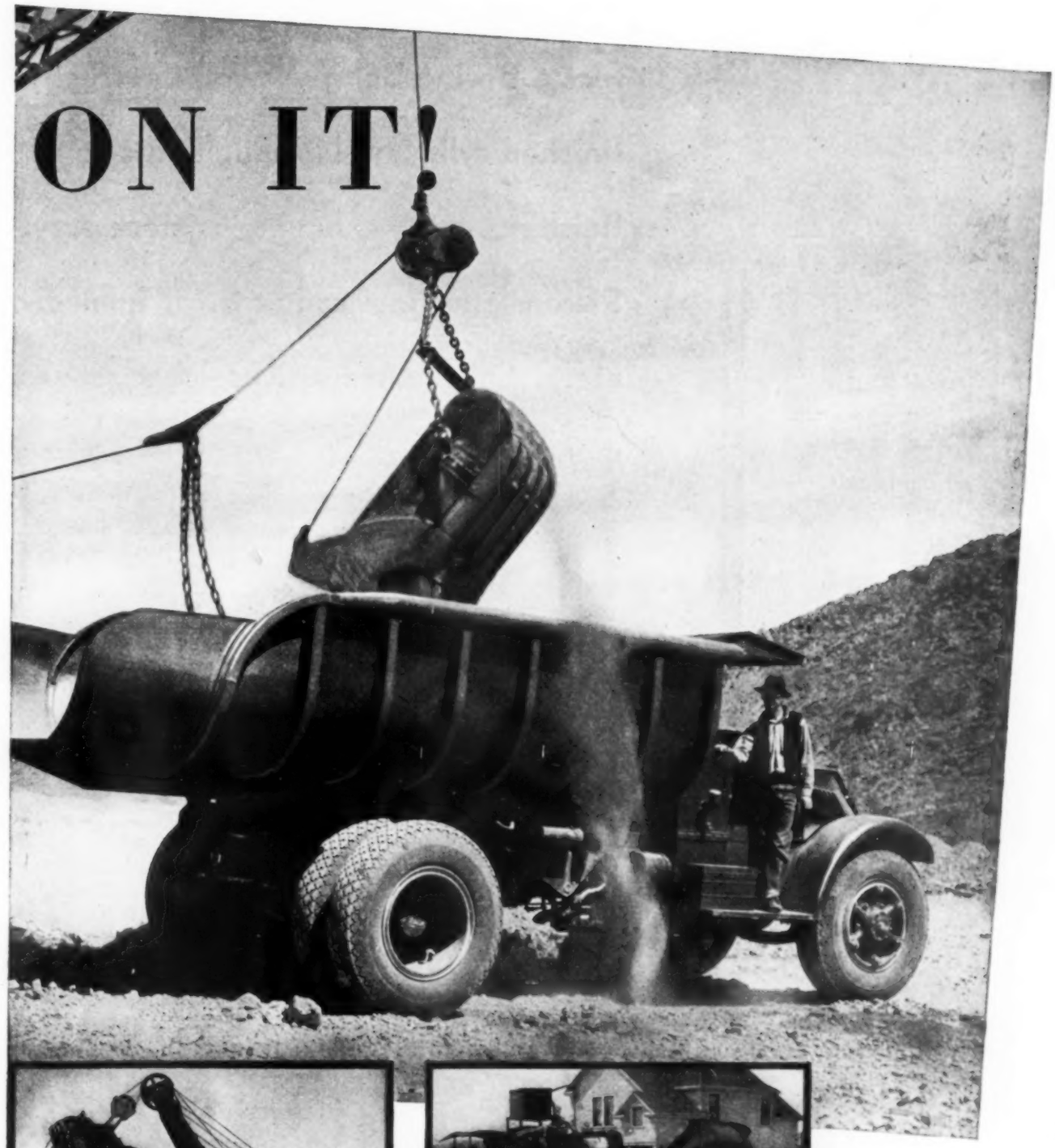
Trained lubrication engineers are available for consultation on the selection and application of Texaco Petroleum Products. Prompt deliveries assured through 2020 warehouse plants throughout the United States. The Texas Company, 135 East 42nd Street, New York City.

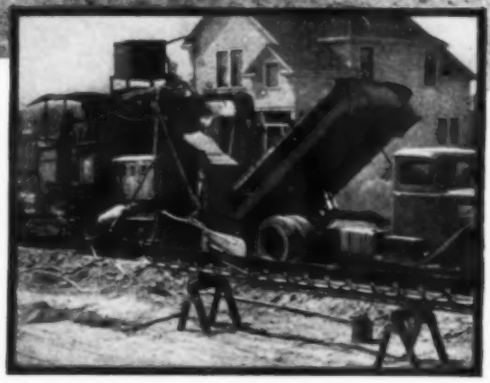
TEXACO

REG. T. M.

TEXACO

ON IT!





With this oil in your crankcase, your engines will keep free from those deposits that can stick piston rings and valves. With this New Texaco Motor Oil, your vehicles will give you greater mileage between overhauls.

TRUCK LUBRICANTS

One cut with a Van Norman Per-fect-o Boring Bar gives you a perfectly finished cylinder. No roughing cut, no finishing cut or honing is necessary. Pistons and rings can be fitted immediately. Saves time, saves labor, saves money.

4 patented, non-revolving supports, located ½ inch back of the cutting tool, travel down the freshly cut cylinder wall right behind the cutter and provide a rigid support for the tool at all times during the cutting operation. Per-fect-o is made in 6 sizes for cylinders from 2.2″ to 9″ in diameter and up to 30″ in depth. It's the most complete line of boring bars in the world. Ask your jobber for a demonstration.

It Pays to Van Normanize

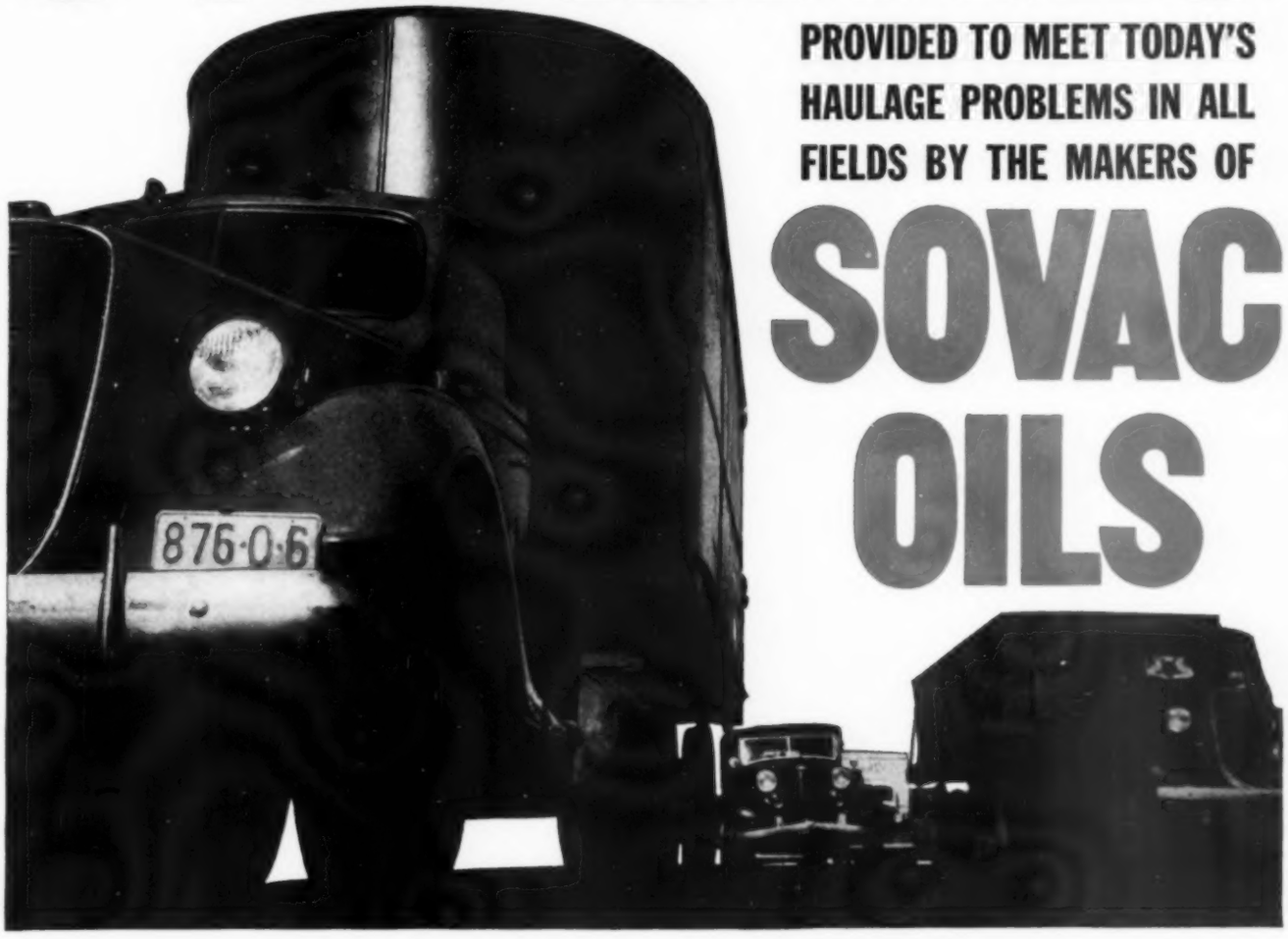
VAN NORMAN

VAN NORMAN MACHINE TOOL CO., Springfield, Mass.

3 FACILITIES

PROVIDED TO MEET TODAY'S HAULAGE PROBLEMS IN ALL FIELDS BY THE MAKERS OF

SOVAC OILS



1 PRODUCTS...by the makers of Mobiloil—world's largest-selling motor oil. All that science and modern refining devise go into manufacturing Sovac Oils...*by the Clearosol Process.* Mobilubes for gears, Mobilgreases for chassis, are most economical.

2 EXPERIENCE...beginning with George Selden's "horseless carriage"...backs up Sovac Oils. This experience—the greatest in the oil business—is available to users of Sovac Oils through trained "fleet engineers." They help your men increase your profits.

3 NATION-WIDE SERVICE...anywhere in the country, the same high-quality Sovac Oils and skilled service you demand at home terminals. These quality oils and our trained "fleet engineers" will help lower "cost-per-mile" and maintenance per vehicle.

• • •

It will pay you to take immediate advantage of these Socony-Vacuum facilities. It's the surest, quickest way to step up efficiency in your whole operation. And remember, it doesn't cost you a cent to find out how Socony-Vacuum can help your own maintenance men save you money.

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SOCONY-VACUUM

BOILING, spouting, geyser-acting radiators are danger signs of engine overheating, excessive oil consumption, and are no end of trouble and expense.

To keep your radiators free from such overheating, there's nothing to compare with regular, effective, low-cost Oakite cleaning. It removes rust and grease thoroughly. Yet energetic Oakite action is SAFE . . . won't harm metal, or hose connections.

COSTS LITTLE!

You'll be surprised when you find how little it costs . . . and how much it saves . . . to make Oakite radiator cleaning a part of your routine maintenance work. Write us for full information.

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TRADE MARK REG. U. S. PAT. OFF.
SPECIALIZED INDUSTRIAL CLEANING MATERIALS & METHODS

Charter CCA Member

FLEET OWNER

Published Monthly in the interests of Automotive Fleet Owners, who Operate or Direct their own Service, and devoted to the Better Operation and Maintenance of Truck, Trailer, Bus, Passenger Car, Taxicab and all Automotive Fleets.

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In This Issue:—

Stripping the Thread	Editorials	15
5,000,000 Miles—No Accidents	F. X. Straub	21
Let's Wire For Safety and Economy	J. L. Lyden	22
Lubricating Chasses in 205 Fleets	H. Clay Fischer	26
Equipment Boosts Bus Business	Benj. Weintraub	32
Drivers' Uniforms Are Important	H. Clay Fischer	34
Oil Terms and Tests Explained	A. L. Clayden	36
Meat Packer Designs Own Body	J. A. Weiland	40
Hard-Facing Parts to Combat Wear		42
Here and There in the Fleet Industry		44
News of the Truck Industry		46
Letters to the Editor		48
New EJ Mack Rated at 16,000-lbs. Gross		49
Federal Adds 10 Oversized Models		50
New Trade Literature		52
Question-of-the-Month Department		53
Here and There in the Truck Industry		54
New Products for Road and Shop		55
Index to Advertisers		82-83

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SMMS

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SEE GMC

THE TRUCK OF VALUE

Advanced stream-style combined with exclusive "dual-tone" color design . . . ample power for full loads . . . refinements and improvements that assure exceptional performance and economy . . . "truck-built" quality throughout . . . either the standard or cab-over-engine types available.

LOW-PRICED HALF-TON MODELS IN TWO WHEELBASES	1½-TON STANDARD MODELS AT PRICES LOWER THAN AVERAGE	CAB-OVER-ENGINE MODELS PRICED WITH THE LOWEST

Our own Y. M. A. C. Time Payment Plan assures you of lowest available rates

GENERAL MOTORS TRUCKS & TRAILERS

GENERAL MOTORS TRUCK & COACH
DIVISION OF
YELLOW TRUCK & COACH MANUFACTURING COMPANY, PONTIAC, MICHIGAN

"ROAD BREAKDOWNS
due to battery and generator troubles

NORTH TORONTO STORE, MONAWK 6488

HEAD OFFICE, RANDOLPH 2187

HIGHLAND DAIRY LIMITED

DIRECTORS

P. C. APPLETON — W. J. MacDONALD
H. H. KENNEDY — D. C. KAY
J. TALMAGE BRYAN

670 ONTARIO STREET, TORONTO - CANADA

October 28th, 1936.

United American Bosch Corp.,
Springfield, Mass.,
U. S. A.

Gentlemen:

We operate a fleet of twenty milk delivery trucks in Toronto and vicinity. Up until two years ago, we experienced a great deal of trouble with our batteries and generators, due to the service conditions under which these vehicles were operated....door to door delivery, long idling, and excessive lighting periods.

Our records for 1933 show that we spent $65.00 per month in battery maintenance and generator repairs, even taking every precaution we knew of to stop this waste.

In December, 1934, we installed our first Volt-O-Matic Generator. The results were so satisfactory that we soon equipped our entire fleet. Since that time our expenses for generator repairs have been $4.25 and batteries last well over their guarantee period, barring accidents. We also find that the trucks are much easier to start and we have completely eliminated break downs on the road due to battery and generator trouble.

We are writing you this letter not only because we want you to know of our real gratitude, but because we hope that it may be helpful to others in our business. To them I can truthfully say that I do not know of any investment we have ever made during our eight years of business that has yielded such an enormous return.

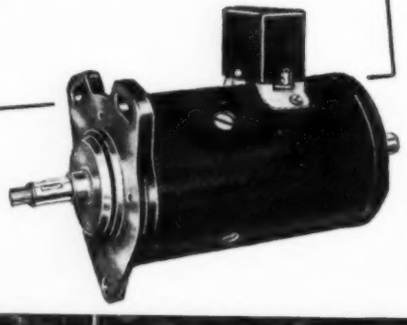
Sincerely yours,

HIGHLAND DAIRY LIMITED
W. G. Whitehouse
Cottage Superintendent.

WGW/IH

100% FROM TUBERCULIN TESTED HERDS

Read every word of this letter from the Highland Dairy Limited, Toronto, Canada. It tells how the time-tested Volt-O-Matic Generator saves them time, worry and expense.



COMPLETELY ELIMINATED"

WITH "TIME-TESTED" VOLT-O-MATIC GENERATORS

. . ."Trucks are easier to start."

. . ."We have completely eliminated road breakdowns due to battery and generator troubles."

. . ."Batteries last well over the guarantee period now."

. . ."We've saved hundreds of dollars a year in maintenance costs."

SUCH are the results truck and bus operators everywhere are reporting constantly—with the generator that removes the danger of overcharged or insufficiently charged batteries.

It's the Volt-O-Matic Generator—the *time-tested* voltage regulated generator. Built for a quarter of a century with railroad watch precision, with railroad block signal dependability. Triumph of a ceaseless succession of refinements that have been developed year by year for 25 years. Masterpiece of close fits, and of accurate workmanship acquired only through long, long years of know how. Constructed of special materials, because the merely "good enough" will not do for the exacting service of bus and truck fleets.

You take no chances with the Volt-O-Matic Generator. You get the one voltage regulated generator whose engineering principles, design, materials and workmanship have been time-tested for a quarter of a century.

TIME-TESTED
VOLT-O-MATIC GENERATOR
UNITED AMERICAN BOSCH CORPORATION
SPRINGFIELD, MASS. NEW YORK CHICAGO DETROIT

"After trying one.. WE INSTALLED 20!"

...RINI, PRES. C. B. PERINI, V. PRES. J. R. PERINI, TREAS.

B. PERINI & SONS, INC.
General Contractors
FRAMINGHAM, MASS.
TELEPHONE 5241 FRAMINGHAM

March 31, 1937

Eaton Products, Inc.,
172 Commonwealth Ave.
Boston, Mass. Att: Mr. H. O. Topliffe

Gentlemen:

In July 1935 after trying out one of your Eaton Ruckstell 2-Speed Axles, we purchased and installed 20 units in our fleet of Dump Trucks.

Our trucking operations are quite severe and we have been more than pleased with the performance and economy of our Dump Trucks when equipped with your Axles. We would not hesitate to recommend them to any one having similar operating conditions.

Very truly yours,
B. PERINI & SONS, Inc.
(Signed) J. R. PERINI, Treasurer

JRP/BCM

• Dump trucking is the most severe punishment that can be given any truck. And it demands from the rear axle all that human ingenuity can build, and mighty steel withstand.

Therefore, it is a bracing compliment when a concern like B. Perini and Sons, Inc., one of the most prominent contractors in New England, writes, "We have been more than pleased with the performance and economy of our trucks when equipped with your Eaton 2-Speed Axles."

With eight speeds forward and two reverse, the Eaton Axle provides a gear ratio for *every* road and load condition. Heaviest loads are started smoothly, out of bad holes or up steep grades, without shock to driving parts. Due to slower motor turnover, returning empty at top speed is possible without burning up motors.

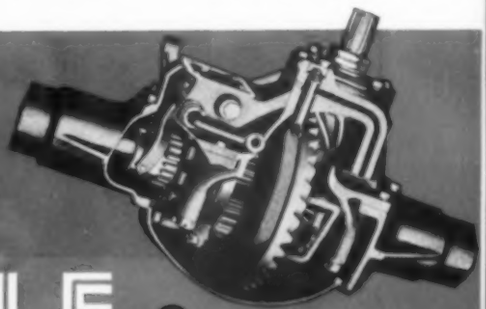
The Eaton 2-Speed Axle prolongs engine life. Reduces gas, oil, and repair bills. "Increases profits," say scores of contractors.

Built for *any* make of truck from 1½ ton capacity and up, the Eaton Axle cuts costs of any type of service—freight hauling, construction work, suburban deliveries, passenger busses, farm trucking, and delivery of gas, oil, wholesale foods and beverages. Send for interesting booklet—now!

EATON MANUFACTURING CO. • CLEVELAND, O.

POWER WHEN YOU NEED IT
SPEED WHEN YOU WANT IT

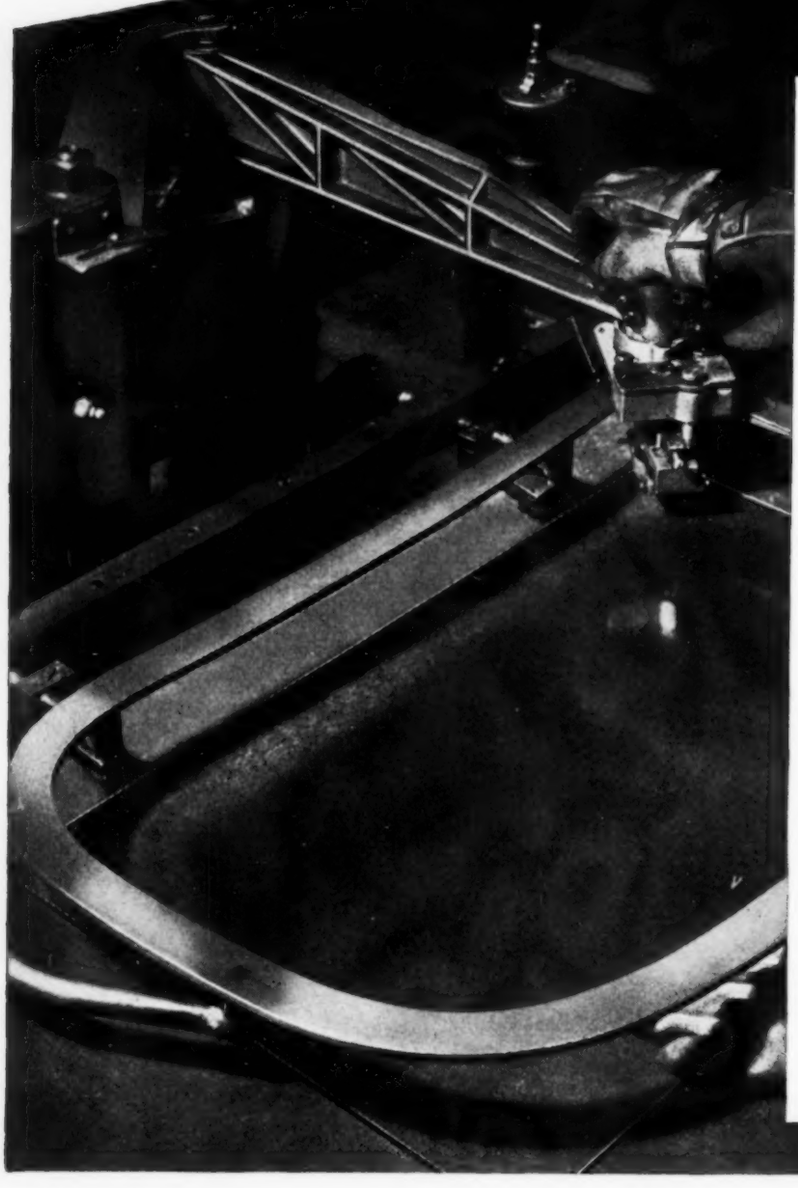
EATON 2 *Ruckstell* SPEED AXLE



8 Speeds Forward —and 2 Reverse

Duplate

THE *Hallmark of Quality* IN SAFETY GLASS



WHEN the safety glass in your equipment bears the etched word "Duplate," you can be sure it is quality safety glass. For Duplate is made by a company famous for quality glass products the world over . . . Pittsburgh Plate Glass Company. Duplate is the embodiment of over fifty years of glass research and glass-making experience. Duplate is a tested safety glass . . . its excellence assured by the record it has established in actual performance over a period of years.

That's why we urge that when you order new equipment, you ask for Duplate Safety Glass in all window openings. And when glass replacement is necessary, that you call your nearest Duplate dealer, listed in the "Where to Buy It" section of your phone book. Then you'll be sure of getting a safety glass that renders more dependable service. Write us for complete information about Duplate. And ask, too, about Duolite Safety Pennvernon Glass, which we recommend when low price seems more vital than the perfect vision provided by Duplate. Pittsburgh Plate Glass Company, Pittsburgh, Pa.

• • •

Cutting plate glass to shape before lamination into Duplate. The steel Template forming the track for the cutter assures absolute precision.

PITTSBURGH PLATE GLASS COMPANY

The Prest-O-Weld W-105A Outfit
. . . includes the standard Prest-O-Weld blowpipe for general welding and heating operations, oxygen and acetylene regulators, hose and other equipment as illustrated here. It will pay you to inspect this outfit at your jobber's, and notice especially the "10-second" Detachable Valve Body—an exclusive Prest-O-Weld feature.
THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation
NEW YORK AND UCC PRINCIPAL CITIES
PREST-O-WELD
WELDING AND CUTTING APPARATUS
PRODUCTS OF A UNIT OF
UCC
UNION CARBIDE AND CARBON CORPORATION
A General Duty Welding Outfit
for $55.00
Price slightly higher west of the Rocky Mountains

THE *New* INTERNATIONALS

Illustrated: 1½-ton Model D-30 with special panel-stake body.

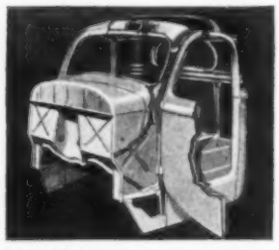
INTERNATIONAL

STYLE has the spotlight these days in the new International Trucks. Streamlined style may be *everything* the public sees when your trucks are on the road, but in your own mind the many improvements built into these trucks are even more important. Improvements *designed* into them from the drawing board up, from the laboratory out. Qualities that will show on the job during the truck's long life, *and be even more evident on the books of your business.*

Style in a truck—important as it is today—is only one side of the story. Clothes may make the man, but streamlines alone cannot make the working truck. In the new Internationals they dress up the underlying stamina, the values and the character beneath the surface.

You can accept these beautiful trucks—a *completely new* line, ranging in sizes from Half-Ton to powerful Six-Wheelers—either on faith, based on International's 30-year success with trucks, or on a careful study of their modern engineering. Or on *both.* Examine these trucks, at any International branch or dealer showroom. Ask for catalogs covering models you require, describing the construction that makes these trucks every bit as good as they look.

INTERNATIONAL HARVESTER COMPANY
(INCORPORATED)
606 S. Michigan Ave. Chicago, Illinois



Section of the ALL-STEEL cab—in ALL the new Internationals! The one-piece top, the sides, the back and cowl panels are welded into the complete cab frame. The one-piece heavy-gauge sill is an exclusive International feature. Rubber mountings stand guard wherever cushioning is needed.

INTERNATIONAL TRUCKS

VOL. 18
NO. 5

FLEET OWNER

MAY
1937

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF TRUCK, TRAILER, BUS, TAXICAB, PASSENGER CAR, AND ALL AUTOMOTIVE FLEETS.

Stripping *the* Thread » »

(The Editor's Column)

I. C. C. DEADLINE APPROACHES

● The Interstate Commerce Commission's Safety Regulations, a complete digest of which was published in our February issue, (unless a postponement is made in the meantime) will become effective on July 1st. . . . In other words, the "deadline" is fast approaching. . . . Fleets operating vehicles which come under such control are hereby warned to check up on their inventories of special equipment which is required and to get busy placing orders for needed accessories, without further delay. . . . The text of the regulations was published in this magazine when it was "news". Because of its appearance a few months ago you may have allowed the importance of this matter to slip your mind. . . . So we trust you will accept this brief note of warning in the spirit in which it is offered.

●

STATES STANDARDIZE

● One of the most gratifying things which we have read in the automotive press in many months, is the recent news announcement that five states (perhaps more by this writing) have already changed their motor carrier safety regulations to conform with those applying to interstate carriers as laid down by the I. C. C. recently. . . . Twenty-eight additional states, it is reported, are also planning to do the same thing, steps having already been taken towards that end. . . . The five states which have already done this include Georgia, Kansas, Kentucky, Mississippi and Tennessee. . . . To which we offer our heartiest congratulations! Efforts of this kind, towards standardization, are not only noble movements, but represent the peak of good, sound thinking and the best of common-sense. . . . Personally, we'd like to see all states move in the same direction. . . . . And so would you.

●

FIRST-AID ON HIGHWAYS

● We hear a lot about fleet operators and truck dealers training their men to render first-aid on the highways in case of accidents to anybody within their reach. . . . The latest case of this kind to come to our attention is the Ormsby Chevrolet Company at San Antonio, Texas, whose men are trained to do something else besides "wrecking" work. . . . These wrecking crew men, shown

in the picture from left to right, are Mike Romero, Archie Earl and Marvin Smith. . . . All are trained and regularly examined by the state Red Cross board. This training enables them to render first-aid service immediately upon arrival, should it be needed. . . . Fleet operators are beginning to adopt this rather humane procedure on a grand scale throughout the country. At least many operators are insisting that a well-filled first-aid "kit" be carried in every vehicle. . . . The Editor will send you some literature on kits of this kind, if you but ask.

MAKING IT EASIER

● We'd like to call your attention to a change that has been made in our method of handling your requests for free literature, on page 52 of this issue. . . . Formerly it was our practice to print a "coupon" on this page, which you were expected to fill out (after hunting around for a fountain-pen). Then you had to dig up an envelope; and finally a postage stamp (a purple one), in order to mail in your selection of the literature desired. . . . Now things are *different*. There is a postage-paid post-card bound-in opposite that page, and all you have to do is fill it out and drop it in the mail—we pay the postage at this end. . . . Making it easier for you to navigate is the *only* change that we have made. The same meticulous care is used in picking out choice literature for you—on its *merits*, rather than as "bait" for advertisers. . . . We guarantee that any literature listed is presented on that basis. If you don't believe it, try it, just once, and find out for yourself. . . . And please do not confuse this department with the voluminous conglomerations found in ordinary (the other fellows') magazines, where they list everything but the kitchen stove. . . . Everyone

(*Please turn over*)

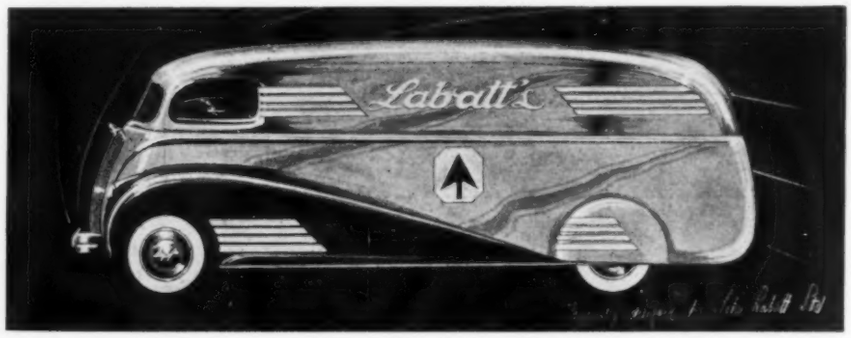
●

H. Clay Fischer
Editor

●

The Editor's Column » »

(Continued from Page 15)



ROLLING BILLBOARD . . . Because Canadian laws prohibit beer and liquor advertising in newspapers and magazines, John Labatt, Ltd., Canadian brewers, demanded a truck of attractive design . . . This streamlined "answer" is the work of Count Alexis de Sakhnoffsky, White's world-famed industrial designer.

should want to keep himself posted by reading up-to-date automotive literature, especially if it's *mailed* without obligation. . . . We are doing *our* part in helping you to get it, and we trust that you will take advantage of this department, asking for whatever literature you think will interest you.

●

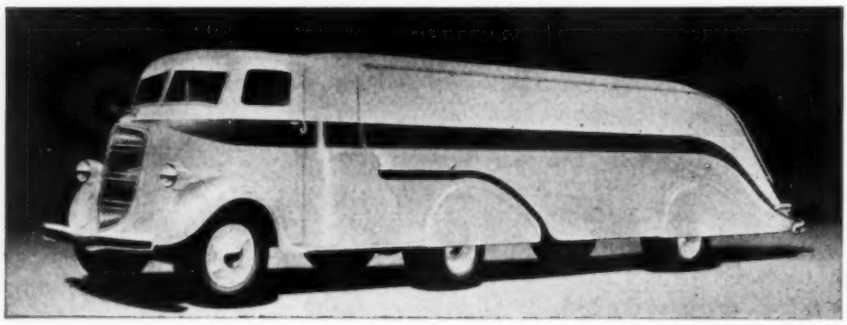
EXIT BALDIES

● Many progressive fleet supers that we have run into lately seem to have removed the expression "bald heads" from their automotive dictionaries—referring to tires, of course. . . . A few short years ago, when they didn't know better (they admit), they used to run their tires as smooth as billiard-balls and then regrooved them, the object being to gain a questionable amount of additional *safe* mileage. . . . But now the procedure seems to be different! . . . These foresighted gentlemen no longer wait for a tire to become "bald," but regroove it as soon as it begins to show an appreciable amount of tread wear; say when there is about ⅛-inch of tread depth still left. The object here, naturally, is to keep the same tread depth as a new tire would have, as *long* as possible. . . . Thus the "bald-head" tire, as we commonly know it, no longer exists with these people—that is, until the rubber has worn down so much that further regrooving is not practical. . . . There seems to be a lot of common-sense to this idea of enjoying a good tread-depth throughout the life of the tire, and the regrooving operation, we know, is not a major one. . . . Let us analyze the thing and see how it will bear scrutiny. . . . Few will argue the the fact that a well-grooved tread (or original pattern) will provide *safer* operation than a perfectly smooth one. . . . Tire manufacturers (who *should* know) agree to this, but they also admit that regrooving somewhat shortens the life of the tire. . . . In other words, if we left our tires alone after they had run smooth, they would last a bit longer than if we regrooved them. . . . But are we *entirely* interested in long mileage, or is it *safe* mileage that is the important consideration? As one fleet man aptly put it, one bad accident in his fleet would buy enough tires for a year. . . . When a tire becomes smooth, the amount of *safe* mileage left in it is practically zero; this seems to be a general concensus of opinion. . . . But, there is approximately 40 per cent of the tread rubber left in it, and a simple regrooving job will bring that "zero" mileage right up to the full 40 per cent safe mileage—or most of it, at least. . . . Since all of us will admit that *unsafe* mileage does not interest us—but that we are concerned about *safe* mileage—does not the idea of a "perpetual-inventory" of original tread-depth seem to have some merit? . . . We know that the idea of regrooving is not new. They have been doing it to solid tires for many years, and the pneumatic came in for its share in about 1932 D.D. (during depression). . . . But we *do* think that our fleet friends have uncovered a *new* slant in trying to maintain the full tread-depth as long as possible. . . . What do *you* think? . . . One fleet man says, *"If I never see a bald-head in my fleet, I'll know that my tire man is on the job—and I'll know that I can't be accused of being lax in this branch of safe operation."* . . . May we confess that we are inclined to agree with him.

●

OIL AND GREASE TESTS

● Not exactly new, but interesting, indeed, are two impartial booklets on lubrication recently called to our attention by Virginia Polytechnic Institute. . . . One entitled *"Lubricating Oil Tests"* gives a practical interpretation of the significance of various oil tests commonly made—and tells in simple language what each one means. . . . The other booklet, entitled *"American Lubricating Greases,"* in addition to outlining various grease tests and their significance, gives a general review of the types of greases recommended for automotive use and materials that go into their make-up. . . . As long as the supply lasts, copies of these books will be furnished gratis. . . . There's no advertising in them and they are strictly university publications, but written in your language and mine. . . . Address the Editor if you'd like free copies for your reference library. . . . First come, first served.



STREAMLINING in tractor-trailers is given a new meaning as a result of a design developed by Fruehauf engineers which provides maximum closure between trailer nose and tractor cab. A Studebaker Cab-Forward tractor and tank-trailer featuring the new styling are pictured here. . . . A cab extension is formed to the same contour as the nose of the trailer. The fifth-wheel is so located and the design so perfected that the cab can be turned at a 90-degree angle to the trailer without contact between cab extension and trailer side.

PUT GOODYEARS ON YOUR

FREIGHTERS

-and Watch your Mileage Jump!

MORE MILES AT LESS COST!

ASK THE MEN in your own line of business—operating trucks just as you do—about tires.

More of them than not will start right in telling you of exceptional mileage records on Goodyear Tires. That's why—

More tons are hauled on Goodyear Truck Tires than on any other kind.

Goodyear builds a type and size of truck tire for every trucking need—for every purse.

It's a safe prediction you'll save money if you let the Goodyear dealer near you show you the Goodyear Truck Tire best fitted for your work.

Read the money saving features at the right. Then put Goodyears on your trucks and *—Watch Your Mileage Jump!*

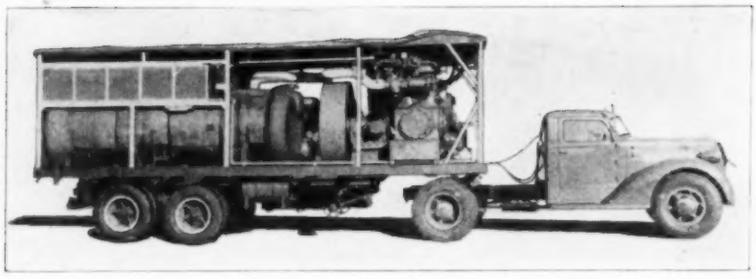
THE GOODYEAR TIRE & RUBBER CO., INC, AKRON, OHIO

MONEY SAVING FEATURES

- Patented Pre-Shrunk Supertwist Cord Construction for greater body strength, protection against blowouts.
- Chemically-toughened, heat-resisting rubber in both tread and body.
- Cooler running High Profile Construction.
- High Shoulder Tread Shape for slower, more even wear.
- Braided Wire Beads to protect against swaying loads.

THERE'S A GOODYEAR BATTERY *now!*

GOODYEAR TRUCK TIRES



PORTABLE PRE-COOLER. . . . Said to be the first of its kind, this outfit is a portable refrigerating plant for pre-cooling railway refrigerator cars. . . . A Diamond-T tractor hauls the B & J trailer, while a Cummins Diesel engine operates the refrigerating unit. . . . Two of these were recently placed into West Coast service.

Stripping *the* Thread

(*Continued from page* 16)

UNIFORMS

● Elsewhere in this issue is offered an article which points out the value of *some* sort of standardized attire for the drivers of truck fleets. . . . Bus operators do not have to be sold on this idea. They realize that anyone who rides in their vehicles has perfect confidence in their drivers—perhaps because they *look* the part? . . . In many cities (but not in New York) taxicab companies are also cognizant of this fact, and act accordingly. . . . Within the past few years truck operators, too, have begun to fall in line, regardless of the vocation in which the trucks are employed. . . . A few more words and then you can read the article. . . . Since your drivers probably contact more of the public than any other branch of your personnel, it behooves you to see that they are walking, talking advertisements for your company—that is, if you value this kind of advertising. . . . One reason why the trucking industry is not regarded so highly in the minds of *some* people, is just because certain drivers look like a nondescript lot, which is putting it mildly. . . . Standardization is a charitable soul, and charity begins at home. So, if our article on uniforms is the least bit helpful, we'll be mighty pleased. You'll be reading it, won't you? . . . It's on page 34.

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WHO SHOULD PAY FOR 'EM?

● While we are on the subject of uniforms for drivers, we'd like to put another thought across. . . . When your trucks are attractively painted, they serve as admirable advertisements, running around the highways. No one will doubt this. . . . By the same token, when your drivers are uniformly clad, with your firm's trade-mark on their caps and jackets, they, too, serve as advertising media. . . . One fleet operator has advanced the thought that since he does not expect his drivers to pay for the paint-jobs on his trucks, why should he expect them to pay for the "paint-jobs" on the clothing they wear? He feels that *he* should contribute towards the fine advertising which his uniformed drivers bring his company, and he is therefore charging the cost of his uniforms to the advertising budget—and the "brass-hats" of the organization are glad to pay it. . . . The thing to remember, however, is that regardless of who pays for the uniforms, this type of standardization will *pay you*, perhaps intangibly, big dividends.

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BATTERY HELP

● Among the "new" products recently called to our attention is one regarding which some very flattering testimonials have been written. In fact, were it not for the fact that these letters of praise came from big men in the fleet game, we'd not be tempted to mention the thing here at all. Here it is. . . . A company in Connecticut has brought out a paste for applying to battery terminals. According to the maker, this product will immediately dissolve all corrosion that may be present, and will *prevent* any *further* corrosion. . . . The paste can be laid-on or painted-on. It has the consistency of a light grease but its color is black. When applying it as a paint they recommend that battery boxes, containers, terminals, fittings and cables be so treated. . . . It spreads easily and does not evaporate readily, they tell us, and that it will not attack any metal, wood or painted surfaces. . . . The fact that this product not only removes but *prevents* any further corrosion for an indefinite period, strikes us as being worthy of front-page news. . . . If further information is desired, and perhaps a small test sample, we'll be glad to put you in touch with the maker. Just write to the Editor and ask us for it. There's no obligation, of course.

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You May Not Believe It!

(But It's True)

THE FACT:

COMPRESSION ratios in 1937 will be lower in racing cars and higher in stock cars.

THE PROOF:

THIS seeming paradox, according to B. R. Jones, of Ethyl Gasoline Corporation, is brought about, on the one hand, by the insistent general demand for improved performance and greater economy; and, on the other hand, by a ruling that the fuel used in this year's Memorial Day Classic at Indianapolis must "come from the same pumps that serve the motoring public" . . . Compression ratios in racing cars, therefore, will be lower than in previous years.

DRIVER'S HANDBOOK

● This "column" is getting to be quite convenient for making "spot" announcements of new valuable literature that fleet operators might be able to use. . . . We have just had called to our attention a *very* timely little booklet (about the size of a bank-book) which bears the title "Driver's Handbook." . . . It is intended for distribution to your drivers and contains chapters as follows: *In Case of Accident; Care of the Vehicle; Garage Hazards; Rules of the Road; General Safety Rules; Chart of Brake Stopping Distances.* . . . In the back of this little handbook are several detachable forms to be used in making out accident reports, so that the driver will know just what to do when one occurs. . . . This handbook is bound with durable cover and a copy would just slip nicely into each driver's pocket. . . . If you'd like a free copy (or copies for each driver) just tell us how many you can use and they will be sent without charge. . . . Yes, an insurance company provides these books, but we have their assurance that there is no "catch" to it, and that your request for free copies does *not* invite any high-pressure insurance solicitations. . . . Address the Editor, asking for the "Driver's Handbook." They're free just so long as the supply lasts.

PROTECT AGAINST THE INVISIBLE MENACE

The intake and exhaust action of the Ventilator constantly circulates fresh air and removes carbon monoxide. Truck drivers stay awake and alert—ready for emergencies.

The Evans Universal Ventilator is easily installed in the field—on the top of the cab, above the windshield. Also available without marker lights.

EVANS
UNIVERSAL VENTILATOR

GUARANTEES A CONSTANT FLOW OF FRESH AIR

Everyone knows what carbon monoxide does to the hapless person who runs an engine in a closed garage. But few people realize that it is a worse and more insidious menace on the highway. Odorless and invisible, it sneaks up without warning through the floor boards and through crevices into the truck cab. The driver's senses are dulled—he drowses off—then CRASH! Not a comforting thought—but too many hundreds of accidents have been caused in exactly that way because of bad ventilation. Fresh air must be brought in at the *top* of the cab—and it must be kept circulating.

The Evans Universal Ventilator completely changes cab air from one to four times per minute. Incoming air is thoroughly filtered, preventing entry of dirt, dust, snow, bugs or insects. Exhaust and intake are easily controlled by the operator and incoming fresh air may be directed against the windshield to prevent fogging. Its complete weatherproofing permits highest efficiency in all kinds of weather without hindering the inlet of air. The Evans Ventilator is readily installed in the field. See your nearest jobber today or write us direct, giving us your jobber's name and address.

EVANS

EVANS VENTILATION-HEATING
A Division of Evans Products Company
UNION GUARDIAN BLDG. • DETROIT, MICHIGAN

Fleet operators say . . .

A LARGE number of fleet operators reported their experience with batteries in a recent survey. Their records show that 91.5% failed prematurely. Only 8½% wear out from long life, use, and old age!

More than half these failures were caused by weaknesses or faults within the battery itself. Clearly, this is because many of the batteries in use are not designed for the tough service in trucks and commercial vehicles.

The survey also shows that one-third of the batteries failed due to lack of attention, under- or over-charging, cells allowed to run dry, and similar treatment.

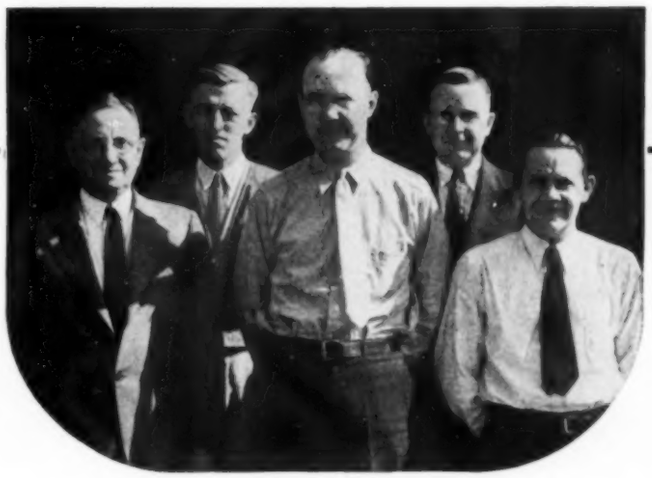
The answer? Equip with Exide—there is a line of four new Exides especially built for the needs of 90% of all commercial vehicles. Then give these batteries the simple, easy attention that any good equipment deserves. That is the one sure route to far longer battery life and lower costs.

In addition to the new Exides for commercial vehicles, there is the regular heavy-duty Exide line for large trucks. Write us for the name of the nearest Exide Wholesaler, who will give you full details.

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

Exide

COMMERCIAL TYPE BATTERIES



5,000,000 Miles Without a Serious Accident

By Frank X. Straub

Home Telephone & Telegraph Company, Fort Wayne, Ind.

POSSESSION of a spirit of service has long been attributed to the employes of communication companies, many of which have as an objective slogan, "The message must get through." This frequently commended spirit has long featured the attitude of the employes of The Home Telephone and Telegraph Company, Fort Wayne, Ind.; but there is present in this organization today another spirit—the spirit of safety.

The organized promotion of safety with this company is fifteen years old. It began with the realization that if accidents were to be averted or held to a minimum, efforts toward that end would have to be concerted. This marked the beginning of The Home Telephone Safety Committee.

The Committee is pictured above. They are, left to right, front row: Frank X. Straub, chairman; Robert Ellingwood; and Lloyd Wire. Back row, left to right: Killion Baker and Walter Ellis.

While this committee is intensely interested in the safety of all and the elimination of accidents of all kinds, it has found it necessary to concentrate major attention on the automotive units of the company and their drivers.

Every known effort has been made to acquaint each and every driver of company automobiles and trucks with the importance of safety. Because of the intensive and varied work of the safety committee, hardly a week passes but that all drivers are impressed with the importance of driving slowly and carefully.

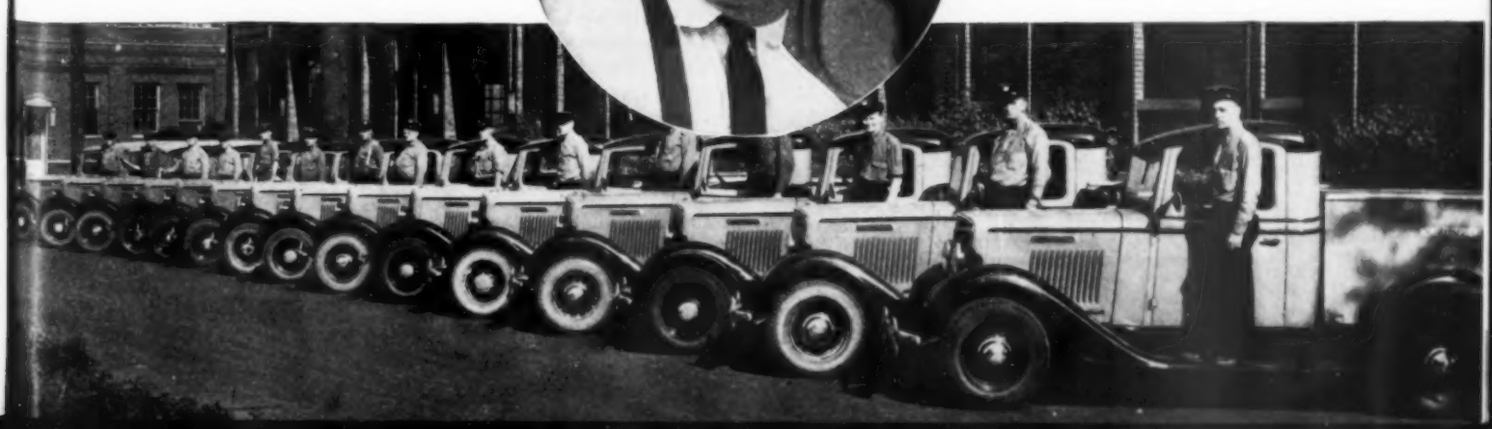
The beneficial results of this attention are apparent in the record of this company for the past year. The police department of Fort Wayne recently acknowledged this record by commending the safety committee of the company for its work. Through its traffic sergeant, Custer A. Dunifon, praise was given the company's cooperation, and attention is called to the fact that "not one accident charge appears on our records against The Home Telephone and Telegraph Company drivers." His letters reads as follows:

"The continued cooperation of your automobile drivers and safety committee in the matter of accident prevention deserves commendation.

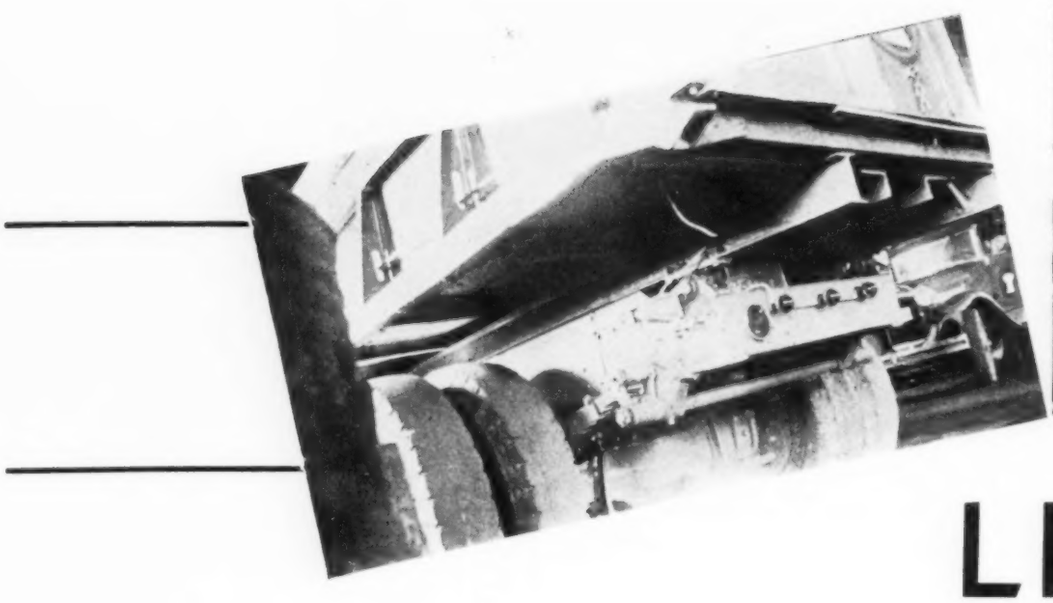
"During the past year, in Fort Wayne, 14 persons have been killed and 471 injured in accidents involving motor vehicles. Not one accident charge, however, appears on our records against The Home Telephone and Telegraph Company drivers. This splendid achievement does not surprise me, because I personally observed their careful driving during the past year."

(*Please turn to page* 73)

Traffic Sergeant Custer A. Dunifon, of the Fort Wayne police department, who praised the safety record established by The Home Telephone and Telegraph Co. fleet.



Fifteen of the 19 service-car units of The Home Telephone and Telegraph Co. fleet which has won widespread recognition for accident-free operation.

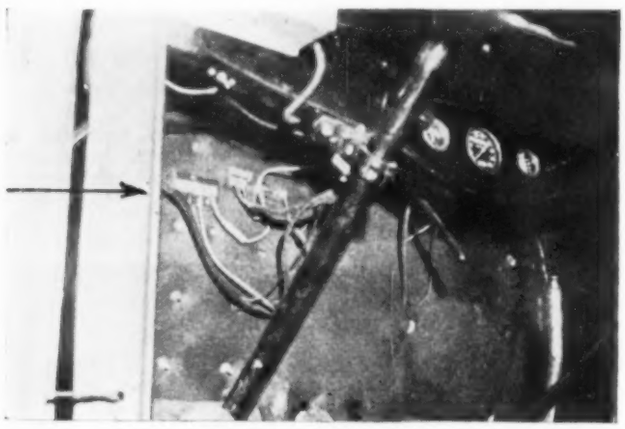


LET'S for SAFETY and

IN WHICH a "super" gives you some of his own pet ideas on the subject of properly wiring the many electrical devices that truck operators are now required to install.

MOST of us in the trucking game can remember, not too long ago, when the average truck carried three lights, two of which usually "worked"; to wit, the headlights, served by a Prestolite tank or acetylene generator. The third, or tail-light was generally of the oil-burning variety—when it burned—and quite often it merely shed a pall of gloom comparable to the mood of a truck owner who had just received the cheering news that one of his roving liabilities had "rolled" a tire fifty miles from nowhere and a hundred miles from a tire press. Them was the happy days of the "horseless iron"!

How different is the truck of today! The use of electric lights is practically universal and nearly every state has its own ideas on truck decoration. Often a truck traveling through several states must have two or more separate light circuits to comply with the different requirements, and the situation is growing steadily worse. Headlamp specifications vary and turn-signals also are required by law in some states. With today's operating conditions, fog-lights are being accepted as a valuable safety item, as are ditch-lights and spotlights.



Arrow points to home-made bus-bars for attaching additional electric-outlet wires. Note the built-in fuse in one of the wires and the fuse-blocks on others. . . . This is NOT a bad example of wiring.

Cab lights, instrument-board lights, trouble-lights, lights inside the body, pilot-lights, buzzers, etc., further complicate the problem of electrical equipment, not to mention spotlighting of advertising signs, winking stop-signals, defrosters, electric windshield wipers, radios, cigarette-lighters and heaters. Even the ubiquitous neon sign has made its appearance in all its sparkling glory on the modern truck.

This electrical situation has progressed so rapidly that in many cases even some of the latest truck models are but sketchily equipped for it. The rest is left to the buyer or body builder and often the final wiring job is a fearful and wonderful web of potential trouble, instead of the well planned and executed system it should be.

Aside from the trouble and inconvenience occasioned by shorts, etc., in such a setup, there are several real reasons why truck wiring should receive something like the careful attention that other safety items are accorded. It is well to remember that the danger from fire is *always* present, even in a six-volt system, when insulation is cut or chafed, or when a circuit becomes overloaded from one cause or another. Also the danger of collision when marker-lights, tail-lights or stop-signals might fail.

Anyone who has experienced the sickening, nerve-wracking sensation of having his headlights suddenly "black out" while wheeling twenty tons or more of truck and freight along a narrow highway at forty per, will say "Amen" to the statement that the lighting

WIRE ECONOMY

By John L. Lyden,
Maintenance Superintendent,
The Phillips Brothers Coal Company,
Pittsburgh, Pa.

system of a truck engaged in highway transportation is no place for a novice to enlarge his experience.

At present there are few laws or regulations governing the subject of wiring, but adherence to the rules of common sense and safety will enable any qualified truck mechanic with a little understanding of electricity to turn out a safe and dependable job of truck wiring.

The first requirement is an adequate source of current supply, which means a generator big enough to supply current to meet all demands that may be made upon it from lights and other equipment and at the same time keep the battery charged. Efficient voltage regulation is also important, to avoid damage to battery and generator and to minimize the possibility of current build-up blowing lights or fuses.

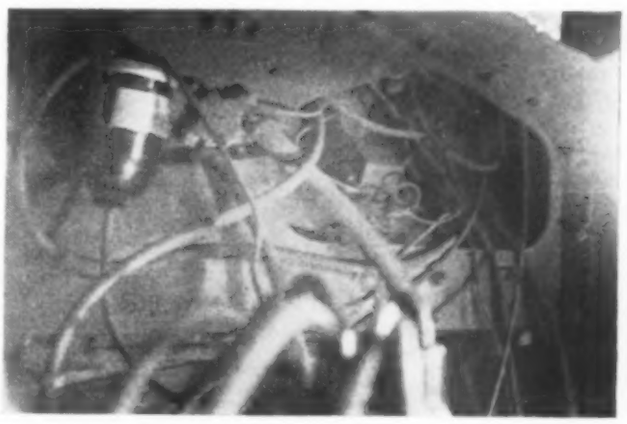
The battery or batteries should be of ample capacity and of good quality. In the case of trucks carrying more than the average number of lights, the twelve-volt system will usually be found more economical and efficient. In wiring the completed unit it is best to leave the manufacturer's setup intact, although it would not necessarily be sacrilege to make sure that this original wiring conforms to certain safety requirements, particularly with reference to the additions to be made.

In this connection the ammeter, generator cable and the lead from ammeter to battery should be checked for capacity. Charts are available showing the size of cable required and while they usually include a margin of safety, it is much better to use a heavy cable rather than a too light one. And also, since the load to be carried may and probably will increase as time goes on.

Since the number of wires that can be attached to the binding post of the ammeter is limited, the first thing to do is to locate a base of operations. The best and simplest way to do this is to install a terminal or bus-bar with enough binding posts to accommodate all of the circuits that may be required. This should be of copper, well insulated against possible grounds and securely attached to the back of the instrument board or dash in as convenient a location as possible. It should also be fitted with a cover.

A cable should next be run from this bus-bar to the ammeter, including a fuse block or circuit-breaker of ample capacity to carry any normal load. The cable itself should be insulated with good quality rubber and fabric, fitted with lug terminals and should be anchored with clips wherever possible. Anchorage spots may be protected with loom and if the possibility of chafing exists, the entire cable should be protected

(*Please turn to page* 24)



Many wires grow where few grew before! . . . Originally this job boasted but five wires—one for each of four spark plugs and the magneto-to-ground wire. . . . Now look at the darned thing! . . . A BAD example!

with a substantial loom covering.

The above terminal will serve as a starting point for all added circuits unless it is necessary or advisable to run one or more directly from the battery. (In this case a fuse block should be mounted as close to the battery as possible and care should be taken to prevent trouble in the cable between the battery and this point.) Lights at the rear of the truck should be wired from this dash or instrument-board terminal and *never* from the original tail-light circuit. Circuits should be mapped out to carry as many lights as possible on each one, to cut down the amount of wiring.

High-tension wiring is something that the author of this article apparently forgot to talk about. . . . We might add that cheap wiring is a false economy and that nothing but the best that money can buy is good enough for this purpose.—Editor.

The proper size cable can be determined from the length required and the number of lights and total amperage draw. Where a small size is indicated from the electrical standpoint, it may be advisable to use a larger one for mechanical reasons, not the least of which is the difficulty of keeping terminals on the smaller sizes. Generally speaking, a cable smaller than number 14 is unsuited for truck service. Tractor-to-trailer couplings should be the best obtainable and should be kept in good condition to prevent excessive voltage drop here. Where tractors and trailers are interchanged, a standard wiring setup is of course necessary.

In starting any circuit, a cable is run from the bus-bar to a switch on the instrument board, including preferably a secondary fuse of just enough capacity to carry this particular line. Fuse blocks may be built in as a part of the bus-bar, and where several light circuits are to be installed, the switch may be of the "gang" type. It is a good plan to mark *every* switch on the instrument board to avoid possible confusion. Pilot lights, to indicate light failures, are being used to some extent and while they involve extra equipment in the form of relays, etc., they are a valuable safety item and add to the peace of mind of the careful driver.

The type of cable to be used from the switch to each device depends on its location or on the preference of the user. Armored cable will stand somewhat more abuse, but where it is exposed to salt water or considerable moisture the use of a rubber-and-braid-covered cable with the added protection of a loom covering is preferable for this type of service.

Whatever type of cable is used, it should be of good quality and should be laid as far as possible in a sheltered place on the chassis or body, protected from abrasion, swaying or stretching and should be anchored with clips, or staples, using loom as an extra covering at the anchorage points. Inside the frame side-rail is the logical place for all chassis wiring. Body wiring on enclosed van jobs is generally built in and if properly installed should give little trouble, provided the outlets are of substantial construction.

Where much additional wiring is to be installed on an old job, the use of conduit may be necessary. This may take the form of steel, brass or copper tubing, according to the requirements of the individual job. All connections should be soldered, except to lamp plugs, bayonet couplings, etc., where the connection is securely made with screws. Connections to binding posts are made by means of lug terminals soldered to the cable, using a non-acid flux. The exposed part of the terminal may be protected with a short section of rubber tubing or taped and shellacked.

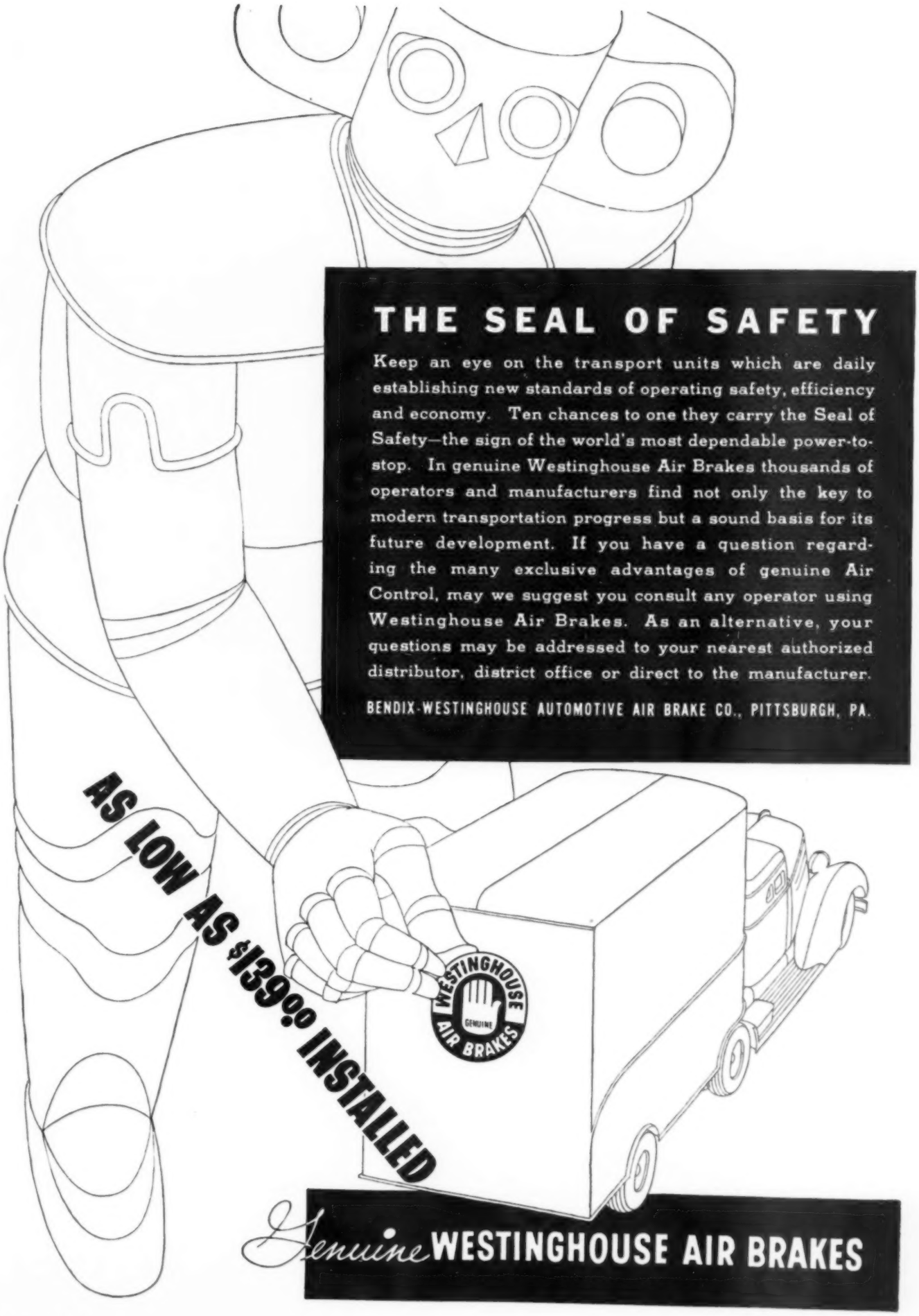
Cables should be supported in such a manner that a minimum of strain is placed on terminals or connections. Junction boxes are advisable at branches if a well covered type is available. Otherwise joints should be soldered and covered with tape and shellac.

Lamps and plugs should be selected for permanence and reliability; this is true especially of bayonet fittings and connections between lamp sockets and bodies. Switches and other accessories, to give trouble-free service, should be selected for ruggedness of construction rather than for ease of installation or appearance. Ground contacts from lamp bases, etc., to the truck frame are as important as other parts of the circuit and where permanent metal-to-metal contact, safe from rust and corrosion is not assured, a separate ground should be made.

Where, as is sometimes the case, the battery is grounded to the motor or transmission, a cable of the same size might profitably be used to insure a permanent electrical contact between the motor base and frame. Many instances of poor headlights and "flirtatious" tail-lights

(*Cont. on page* 74)

FAULTY wiring may have caused this! . . . What's left of a large tractor, semi-trailer and cargo after a very complete fire which started under the chassis. . . . The driver just had time to clear the highway with his blazing behemoth, in the manner shown. . . . This snap was taken on the Wm. Penn Highway, near Pittsburgh. The truck belonged to an interstate freight carrier.


THE SEAL OF SAFETY
Keep an eye on the transport units which are daily establishing new standards of operating safety, efficiency and economy. Ten chances to one they carry the Seal of Safety—the sign of the world's most dependable power-to-stop. In genuine Westinghouse Air Brakes thousands of operators and manufacturers find not only the key to modern transportation progress but a sound basis for its future development. If you have a question regarding the many exclusive advantages of genuine Air Control, may we suggest you consult any operator using Westinghouse Air Brakes. As an alternative, your questions may be addressed to your nearest authorized distributor, district office or direct to the manufacturer.
BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE CO., PITTSBURGH, PA.
AS LOW AS $139.00 INSTALLED
WESTINGHOUSE
GENUINE
AIR BRAKES
Genuine WESTINGHOUSE AIR BRAKES

Chassis Lubrication Experiences in 205 Fleets

By H. Clay Fischer
Editor, FLEET OWNER

FLEET OPERATORS find it more economical, convenient and time-saving to do their own chassis lubrication in their own shops. We make this statement without fear of contradiction, for, it is based on a "survey" just completed through the medium of our Question-of-the-Month Club. Two-hundred-and-five fleet operators, in 38 states, Hawaii, Puerto Rico and Canada participated in this survey. Each fleet has an "average" of 144 vehicles. Thus, you see, the survey may be considered as being quite "representative."

As is our usual custom, these 205 fleet men have by this time received their typewritten tabulations of all the replies to Questionnaire No. 75, which was published in our February issue of this year. They have received all of the confidential and "meaty" information. You fellows who didn't participate in it will have to be satisfied with the brief summary which follows. However, if you care to fill in this month's questionnaire, which appears on page 53 of this issue, we'll gladly send you a copy of the Chassis Lubrication tabulation in exchange, and we'll also promise to send you the confidential report on the subject which this month's questionnaire covers, as soon as it is ready.

Here's what we found out about chassis lubrication in 205 fleets. . . . The fact that fleet operators *prefer* to do their own chassis lubrication, in their own shops, is borne out by the answers to the question, which asked, *"Do you do your own chassis lubrication in your own shop, or do you farm-out this work to outside service stations?"* The answers revealed that out of 205 fleets, 183 operators do *all* chassis lubrication in their own shops; 10 fleets do some and farm-out some; only 12 fleets (out of 205) farm-out all of their greasing work.

The fact that the matter of cost is one of the factors responsible for the above condition, is seen in the answers to the next question, which asked *"What is your average cost per chassis greasing (not including transmissions or rear-ends), including labor and grease?"* . . . Only 138 fleet men replied to this question, giving costs ranging from as low as 25¢ per vehicle to as high as $3.00 per vehicle, per greasing. The *average* of all the costs given works out as 78¢ per greasing, per vehicle. . . . It is interesting to note that three cost figures were mentioned more numerously than any of the others, namely, 50¢, 75¢ and $1.00.

If we can assume that, when this work is farmed-out to outside service stations, the average cost per truck greasing would be in the neighborhood of $1.00 per truck or more, the figures given in the preceding paragraph would certainly seem to bear out the thought that fleet operators can perform their own greasing in their own shops, more economically than they could by having this work done by outside service stations. . . . At least that's the impression which we gained after going through and "digesting" this survey very thoroughly.

One of the very first questions which we asked was *"How often is chassis lubrication performed on the vehicles in your fleet?"* . . . Some fleet operators reported that greasing is done at various time intervals; others gave mileage periods; some operators gave time and/or mileage figures, whichever occurs first or according to the accessibility of the vehicles for lubrication. Some operators perform lubrications and inspections at the same time.

Rather than burden you with a lot of figures here, and rather than try to strike an "average" that will not mean very much, let us give you just the highlights of the answers to this question of time or milage beween lubrications. Few fleet operators perform chassis lubrication oftener than every week. Most of the time answers given ran at weekly periods or longer intervals. The bulk of the answers were given as weekly, every 2 weeks, every 3 weeks and every month.

Among the *mileage* figures given, "Every 1,000 miles" captured most of the honors. A close second were mileages ranging between 500 and 1,000 miles. Every 1,500 miles came next, and every 2,000 miles

(*Please turn to page* 28)

ENDS SIDEWALL FAILURES

Lumber Trucking Company Boosts Mileage . . . Ends Tire Failures With Goodrich Silvertowns

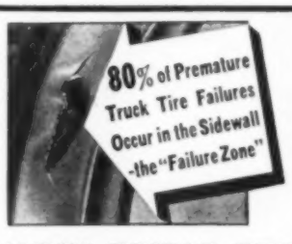
Loads are always heavy for the Lumber Trucking Company, Poughkeepsie, New York. They average 12 tons. Some run better than 15 tons. Traveling through hilly country, over high-crowned roads, often far from pavements, they used to have plenty of tire trouble. Almost new casings blew out in the sidewall.

NOT A SINGLE FAILURE

Then the fleet of ten trucks was gradually changed over to Triple Protected Silvertowns. They noticed the difference right away. *They haven't had a single side-wall failure with these tires!*

Here's the reason. To stand up under punishing loads, Goodrich Silvertowns are Triple Protected in the sidewalls—the weakest spot in all truck tires. Right at the point where 80% of all premature failures occur, Silvertowns are fortified with this new invention. It checks ply separation, makes tires run cooler, prevents a big cause of blow-outs. Here is extra mileage, fewer tire delays, greater freedom from dollar-stealing sidewall breaks.

Whether you haul logs, lumber or livestock, we can save you money on your tire costs. You can get proof from any Goodrich dealer—or write The B. F. Goodrich Co., Akron, O.



HOW TRIPLE PROTECTION WORKS

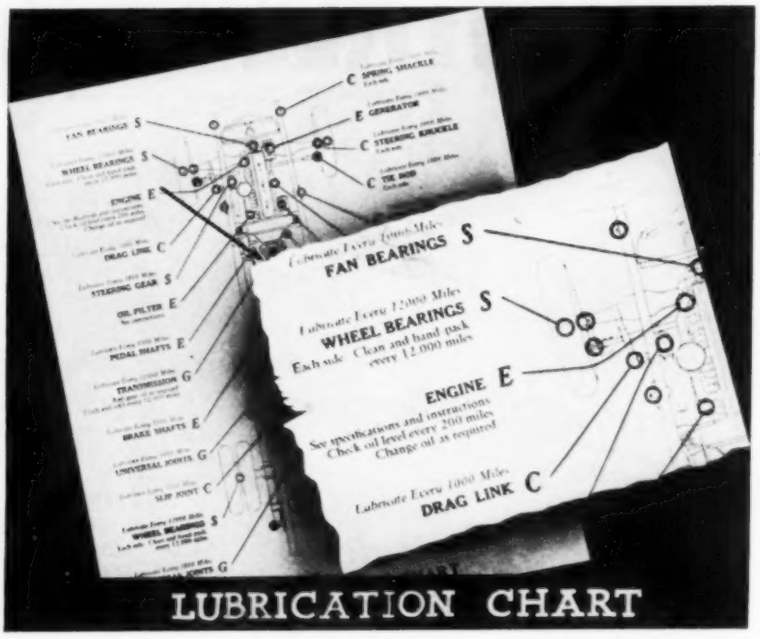
1 **PLYFLEX**—distributes stresses throughout the tire—prevents ply separation—checks local weakness.

2 **PLY-LOCK**—protects the tire from breaks caused by short plies tearing loose above the bead.

3 **100% FULL-FLOATING CORD**—eliminates cross cords from *all* plies—reduces heat in the tire 12%.

Goodrich *Triple Protected* Silvertowns

SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES



next. The lowest mileage figure given was "300 to 700 miles". The highest was every 3,000 miles. If you are interested in seeing a breakdown of these figures, such a breakdown is contained in our mimeographed summary, a copy of which will be sent to any fleet operator in exchange for this month's questionnaire, properly filled out, as stated previously in this article.

And now we come to the different types of lubricants used. The old days, where one bucket of "600-W" would take care of any kind of a fitting requiring grease, seem to be gone forever. Before we go any further it might be well to remind you that this questionnaire purposely eliminated any reference to gear-box lubrication—transmissions and rear-ends, to you. We felt that the subject of chassis lubrication was one important enough to be treated separately. And that gear-box lubrication is also important enough to get separate handling, which will be done at a later date. In the meantime here is some of the helpful information we uncovered concerning the different types of lubricants used:

Regular chassis lubricant is used in the following numbers of fleets (out of 205): For ordinary chassis fittings—170; for clutch release bearings—125; for brake cables—86; for water-pumps—16; for steering gears—73; for universal joints—62; for wheel bearings—17.

Special lubricants are used in the following numbers of fleets (out of 205): For ordinary chassis fittings—27; for clutch release bearings—58; for brake cables—62; for water-pumps—167; for steering gears—115; for universal joints—128; for wheel bearings—174. . . . Of special note is the large number of fleet operators using special grease for water-pumps, steering gears, universal joints and wheel bearings, which is somewhat as it should be, think we.

Separate lubricating guns are used in the following numbers of fleets (out of 205): For ordinary chassis fittings—47; for clutch release bearings—28; for brake cables—26; for water-pumps—81; for steering gears—54; for universal joints—67; for wheel bearings—34. . . . There is not much comment that we can make on this last question, excepting that not enough fleet operators are using as full an assortment of guns as they might. . . . In this connection, the picture published on page 30 represents, in our opinion, the *minimum* assortment of grease-guns that a fleet should have. While these are hand-operated guns shown, there's no law against using power-operated guns, you know.

New type of "magazine" gun which consists of the one air-motor and five or more lubricant magazines. This facilitates the use of different types of lubricants.

Our next question asked *"About how many pounds of chassis lubricants do you use per month, NOT including rear-end or transmission greases?"* . . . On account of the great variation in the sizes of the fleets answering this question, we will not attempt to strike any figure based on *numerical* averages. Rather, let us give you a few outstanding highlights. The lowest figure mentioned by any fleet was 10 pounds per month; the highest was 2,700 pounds per month. In round numbers, the "average" (not numerical average) figure of the fleets participating in this questionnaire would indicate a grease consumption of between 50 and 100 pounds of chassis lubricant per fleet, per month. We do not believe that anyone (excepting the grease makers) will be interested in a more elaborate breakdown of this question, so let's get to the next one.

We then asked, *"What make or makes of chassis lubricant do you use?"* . . . Fifty-six makes of greases were mentioned, some operators mentioning more than one make; others not answering. The relative popularity of chassis lubricants among fleet operators is indicated in the table of makes mentioned, but that is one of the things that we are not going to give you here. As before stated, all confidential information of this kind is published in our mimeographed summary to this questionnaire. Copies of this summary are reserved specifically for those fleet men who were good enough to participate in the questionnaire. Why should 205 fleet operators take the time and trouble to fill out a lengthy questionnaire, and then have us give the results of their interested efforts to everybody else? So, gentlemen, we must withhold this bit of meaty information from you in these pages, but if you want to get a copy

(*Please turn to page* 30)

IF YOU KNOW YOUR COSTS PER PAY LOAD MILE . . . YOU ARE ALREADY PLANNING TO PUT THE CUMMINS DIESEL ON YOUR PAYROLL.

On your pay roll the CUMMINS DIESEL adds an immediate profit to each pay load mile. The engine pays its own way in BANKABLE savings: fuel economy, lower maintenance, longer engine life.

Shipments of Cummins Diesels to the Pacific Coast continue to increase, but the East now leads in the demand . . . more than half the orders are from operators who already have two or more Cummins Diesels in their fleets.

Get the facts . . . assure the sound business future of your fleet with Cummins Diesel powered trucks. Cummins Engine Company, 620 Wilson Street, Columbus, Indiana.

Ask for your copy of The Dependable Diesel—72 pages of Cummins Diesel demonstration.

CUMMINS
Dependable
DIESEL PIONEER IN MODERN DIESEL DEVELOPMENT

"READ THE RECORD" of the Pacific Freight Lines with 111 Cummins Diesels in their fleet. Let Vice-President Anthony tell you how he saved $123,886.71. Ask for "A Comparison of Diesel & Gas Operating Costs."

of the summary, about which we have said plenty already, we'll trade you one for this month's questionnaire, properly filled out. It's on page 53, so do your stuff if you think you would like the "confidential" information on chassis lubricants.

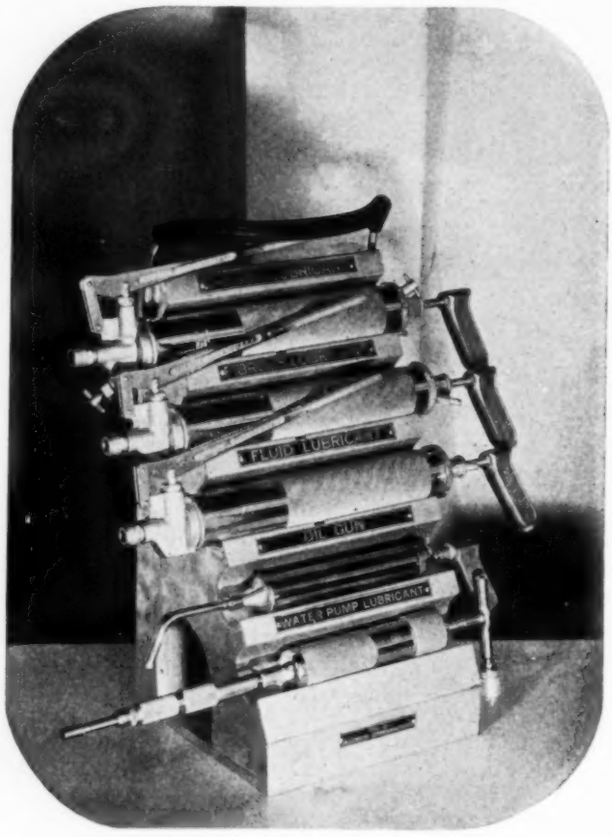
We *are* glad, however, to give you the following bit of "teaser" data with reference to makes of chassis lubricants preferred by fleet men. Of the 56 makes mentioned, one nationally-known make was mentioned 35 times; the second make was mentioned 17 times; three more makes were tied in third place with 10 mentions each; the next makes were mentioned 9, 7, 7, 6, 5, 5, 4, 4 and 4 times respectively. The balance of the makes were mentioned three times each or less. There were 27 (exactly 50%) makes that were only mentioned once each. As to what these makes were, the summary gives them all. . . . We have repeatedly pointed out in surveys of this kind that consistently-advertised products seem to be most popular. The same holds true in this particular survey.

Source of supply always being of interest, we next asked: *"What is your source of supply on chassis lubricants?"* . . . "Oil-company" was mentioned 171 times; "Oil jobber" got 36 votes; "Service-Station" claimed 11 fleets; and "Automotive Jobber" brought 4 replies. The balance did not answer. So there's the story on source of chassis lubricant supply.

In order to clarify the above question and make it more valuable, we asked *"Do you buy gasoline and chassis lubricants from the same source?"* . . . Eighty-two fleets said "Yes"; 91 said "No"; 13 more operators said "Sometimes"; and 19 did not answer the question. . . . There are many angles from which to view the answers to this question. Without giving the matter much thought, might we say that greases seem to demand specialized sales-engineering. We get the impression that fleet men are more choosy about their greases than their gasolines; or else that the gasoline salesmen might be more active than the grease salesmen; or vice versa. At any rate, there's plenty of data contained in this survey for oil companies to mull over. If they find it interesting and valuable, we'll feel grateful and shall consider our job well done.

Getting to the equipment side of the question, we next asked *"Do you use power-operated or hand-operated grease-guns?"* . . . Sixty fleet operators (out of our 205) use power-operated grease-guns only; 49 use hand-operated greasing equipment; 78 more operators use some power-operated and some hand-operated guns; 18 fleets did not answer. So, there's *still* a big market among fleet operators for enterprising grease-gun manufacturers to go after.

The next question attempts to analyze the power-operated equipment in use, asking *"If power-operated guns are used, do they work by air or by electricity?"* . . . The popularity of the air-operated gun is shown in the answers which were: Air-operated—104; electric-operated—21; use both types—22; no answer—58.



HERE is a set of hand-operated lubricating guns that looks like it ought to be able to take care of the average fleet lubrication job. . . . We are illustrating it here only because it is typical. It emphasizes the necessity of having more than one type of lubricant and gun. . . . You may prefer to use power-operated equipment.

Analyzing the hand-operated grease-guns in use we next asked, *"If hand-operated, are they of the push-gun or lever-type?"* . . . The popularity of the lever-type gun is shown in the answers which were: Lever-type—70; push-gun-type — 35; use both types—33; no answer—67. . . . We could have included "screw-gun type" in this list of questions, but being of the impression that the screw-type of gun for the old pin-type of fitting is not used very much at present, if at all, we decided to omit it. A few fleet operators are still using this type of gun and fitting, however, this survey revealed.

The analytical-minded reader will probably observe that there were more answers given when types of guns were asked for, than were mentioned in the preceding question asking about hand-or-power operation. This discrepancy can be passed off by assuming that some of those operators not answering one question may have answered another. It's not great enough to worry about, however, but we thought we'd mention it just to show you that we are not asleep. So on the next one.

Again we asked for source of supply, the question being *"What is your source of supply on grease-guns and equipment?"* Here are the answers: Automotive jobber—106; manufacturers—58; jobbers and manufacturers—15; oil companies—10; no answer—16. . . . You can draw your own conclusions as to the foregoing. There's the music—write your own words, or, business goes where it is invited and stays where it is treated best, you know.

And here is a *vitally* important question. We asked, *"Do you specify chassis lubricants by make when*

(*Please turn to page* 62)

Here's Proof

of record economy-record dependability

A. A. A. officials selected the half-ton pick-up at Chevrolet's Flint plant.

Over high peaks in high gear the truck went forward, never faltering.

CHEVROLET "ECONOMY MODEL" TRUCK

hauls certified 1000-pound load

The searing sands of the desert, with temperatures up to 116 degrees, were met with ease.

The thermometer held below freezing for days, with highways covered with snow.

10,244 MILES

at cost of
less than

1¢ PER MILE

for gas

This Chevrolet "Economy Model" truck was equipped with Genuine Chevrolet Accessories.

The first oil—two quarts were added at San Francisco, after 3,850 miles.

City officials joined in welcoming the half-ton pick-up truck back to Detroit.

Study this

Unequaled record—then buy

CHEVROLET TRUCKS

Location of Test	'Round the Nation —Detroit to Detroit
Distance Traveled	10,244.8 Miles
Gasoline Used	493.8 Gallons
Oil Consumed	7.5 Quarts
Water Used	1 Quart
Gasoline Cost	$101.00
Gasoline Mileage	20.74 Miles per Gallon
Average Speed	31.18 Miles per Hour
Running Time	328 Hours, 31 Minutes
Gasoline Cost per Mile	$.0098
Average Oil Mileage	1,365.9 Miles per Qt.
Total Cost of Repair Parts	$ .73

These records have been certified by the A. A. A. Contest Board as being officially correct.

Here, in these amazing facts and figures, is definite proof that Chevrolet trucks are the best trucks for you! . . . See your nearest Chevrolet dealer today, and buy Chevrolet trucks for *more power per gallon, lower cost per load*—for maximum dependability and maximum all-round economy.

CHEVROLET MOTOR DIVISION
General Motors Sales Corporation
DETROIT, MICHIGAN

General Motors Installment Plan—monthly payments to suit your purse.

FOR ECONOMICAL CHEVROLET TRANSPORTATION

"MORE POWER per gallon LOWER COST per load"

BUSY thoroughfare in Chicago, showing modern motor-coaches, equipped with automatic transmissions which are said to speed-up traffic and solve problems of rear-engine controls.

New Equipment Boosts Bus Business

FOUR outstanding examples of "immediate results" have followed the purchase of 194 new motor coaches, both double-deck and single-deck, by the Chicago Motor Coach Company, to wit: Increases up to 40 per cent in passenger traffic. . . . An increase in safety as measured by the reduced number of accidents. . . . Decreased driver-fatigue. . . . Maintaining schedules with greater ease, despite the increases in the number of starts and stops required by the increased number of passengers. These coaches, a few of which are illustrated above, have now piled up a total of nearly four million miles of city operation.

Every line on which new equipment has been placed in operation has shown increases in traffic. That the new equipment is in a large measure responsible for this increase is indicated by the fact that the few lines still operating with the older equipment have shown a very small increase.

None of the lines are as yet equipped 100 per cent with new equipment. The largest increase in passengers (40 per cent) is on the line with the greatest number of new buses, while the other lines enjoy increases virtually in direct proportion to the number of new units—ranging down to around 29 per cent above last year.

Chicago's new motor coach equipment is probably the most modern to be found anywhere in metropolitan service. Of the double-deck type, there are 101 units, each with a seating capacity of 72 people. Head-room in both upper and lower decks is adequate for the tallest, with due respect to the low overall height limitation to Chicago's low overhead structures. This has been obtained by a combination of rear-engine design, eliminating running-gear interference and permitting low floor height; and by locating seats with foot-rests on upper and lower decks, in such manner as to give maximum comfort.

An Interview with

Benjamin Weintraub,

Executive Vice-President, Chicago Motor Coach Co., Chicago, Ill.

Particularly interesting in the development of these new buses (they are built by Yellow Truck & Coach Mfg. Co.) is the history of the mechanical development to make operating practicable.

"We first experimented with one-man operation back in 1926", says Mr. Weintraub, Executive Vice-President of the Chicago Motor Company, "and found that the elimination of the confusion and divided responsibility of two-man operation resulted in a noticeable reduction in accidents and that the drivers, far from objecting to one-man operation, actually requested assignment on the one-man coaches.

"As a result, we converted ten double-deck buses for one-man operation in 1929. These buses were equipped with new style transfer-holders and cutters, automatic fare-registers, etc., which made the driver's job easier, thereby permitting him to give added attention to the safety and comfort of his passengers.

"We were not satisfied, however, with the low interior height available in standard double-deck construction, and realized the necessity of installing rear-engine construction which permitted lower floor height.

"In the development of this new type of coach the Yellow Truck & Coach Mfg. Co. co-operated with us during the entire evolution of the engine-in-rear principle, changing from mechanical gearshift transmission to air-shift and eventually to the present automatic type.

"The automatic transmission seemed to be the ideal solution, and after numerous investigations and experiments we finally adopted the Banker 'Monodrive' type. This transmission enabled us to eliminate both the conventional gear-shift lever and

(*Please turn to page* 63)

For Better
TRUCK AND BUS SERVICE
The New AC BLUE TOP SPARK PLUGS

THE NEW Blue Top line of AC Quality Spark Plugs covers all heavy-duty needs. This new line combines all of the features which made AC Heat Range, Long Life, Universal and Tractor plugs such outstanding examples of spark plug reliability.

Yet, the Blue Top line is more than just a consolidation of construction features. In it, also, are many important improvements —even the newest of which has stood the test of two years.

As a result, Blue Top plugs assure longer life, higher efficiency, greater dependability, and improved gasoline economy. They give complete heat range coverage. And their performance surpasses the best that AC plugs have previously displayed.

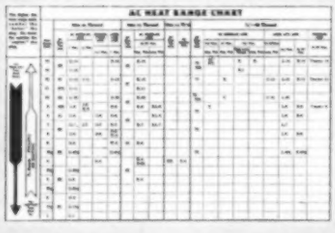
Available now for replacement, AC Blue Tops are also approved for equipment.

Blue Tops set a new standard in spark plugs. Get Blue Tops—for better satisfaction.

Follow the guidance of

THE NEW 1937 AC HEAT RANGE CHART

to fit the operating conditions of individual engines.



To remedy chronic sooting— refer to the Heat Range Chart for the AC plug type with the number next *higher* than the one now in use.

To remedy pre-ignition, blow-by, or rapid electrode wear —refer to the chart for the number next *lower* than the one now in use.

Keep plugs in top condition with

THE AC SPARK PLUG CLEANER

Designed and built by AC, this machine cleans plugs *thoroughly* in 5 to 10 seconds. A precision-built shop tool which pays for itself in a short time.

AC SPARK PLUG DIVISION
General Motors Corporation
FLINT, MICHIGAN

SPRING • IS • THE • TIME • TO • THINK • ABOUT

UNIFORMS *for Your* DRIVERS

THE seven drivers whose pictures are shown above are a part of the fully-uniformed driver-personnel of The Webber Cartage Line of Waukegan, Ill. Frank R. Webber, president of the company, believes in standardization, so far as possible, and carries his beliefs all the way down the line, from trucks to drivers' uniforms.

It is but two short years ago since we started talking in this publication about drivers' uniforms. The fact is that we *believe*, deep down in our hearts, that some sort of standardized attire—it need not be expensive—will make all the difference in the world so far as the appearance of your drivers (and the mental reaction of your customers toward your company) is concerned. Surely you would not mistake the above bunch of clean-cut young gentlemen for anything but a group of employees of an up-and-coming transportation organization.

Many large, nationally-operated fleet organizations have learned from experience that *some* sort of *uniform* attire for their drivers constitutes a good thing. With them it's an old story. Bus operators, too, have found this out for themselves. But there are still many fleets (in various lines of business) who are permitting their drivers to wear last summer's "ice-cream pants," for instance, an old tweed coat and a worn-out sport cap. In other words, they don't care a darn what their drivers wear, so long as they don't go native—or is it naked? The trucking-for-hire industry seems to be one branch of the truck business that is slow in realizing the importance of drivers' uniforms. True, there are many progressive operators who *do* uniform their drivers, but most of them which we have observed do not. For that reason, we have selected the above photograph to head this article—it is representative of one of the exceptions to our rule. Laundries, bakeries, dairies and other industries engaged in "door-to-door" deliveries seem to be more "uniform-conscious" than most run-of-mill fleet operators.

It's an old story, but one that is well worth repeating. You know that your drivers contact more of the public than perhaps any other branch of your personnel. Therefore, does it not behoove you to see that they are walking, talking advertisements for your company? Of course it does; and of course you value this kind of advertising; who doesn't?

The trucking industry has been the recipient of many "black eyes." Might we suggest that it is sometimes because certain drivers perhaps have appeared to be a nondescript lot, for, as Mr. Shakespeare once said, "Apparel oft proclaims the man." . . . and such stuff. Besides, standardization is a charitable soul—and charity begins at home.

So much for the "sales talk." There are uniforms and uniforms, and many fleet operators are confronted with the problem of how to equip their men—what kind of uniforms for winter—what kind of uniforms for summer. And since the winter is now over, we shall not attempt to discuss in this article anything suitable for that season, but shall confine our discussion to cotton uniforms, which, we understand are now being manufactured in many varieties, some of which give the same effect as wool, from the appearance standpoint.

When selecting uniforms a style should be chosen that is neither freakish nor impractical. Truck drivers and driver-salesmen are not expected to look like navy admirals or actors. On the other hand, they should not look like mechanics. Of course, the uniform should be attractive. It must create favorable attention and not be too drab, lest it fail in its purpose. It should be somewhat characteristic of the industry in which the firm is engaged, and *must* be comfortable and best suited to the activities of the wearer. And, last but not least, it should be attractively priced in first cost and sufficiently durable to assure economy in the long run.

For example, the purveyor of food products where cleanliness is a prime requisite, will invariably outfit his drivers in white or khaki uniforms, even to shoes and caps, although puttees (if any) and shoes may either be brown or black. Laundries will use

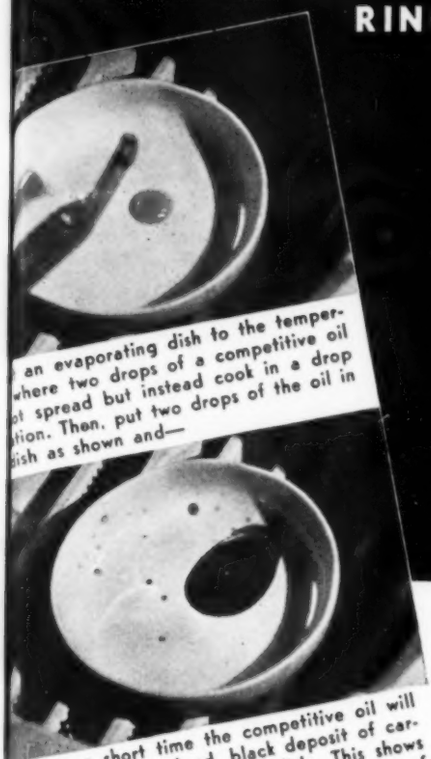
(*Please turn to page* 64)

MANY fleet operators have "reminder mirrors" as shown here, to help drivers keep their appearance up to par. . . . Few are so fortunate, however, as to have an attractive bit of femininity do the reminding, as illustrated here.

DOES EVERY OIL FORM CARBON?

RING-FREE TEST No. 5* ANSWERS THAT QUESTION

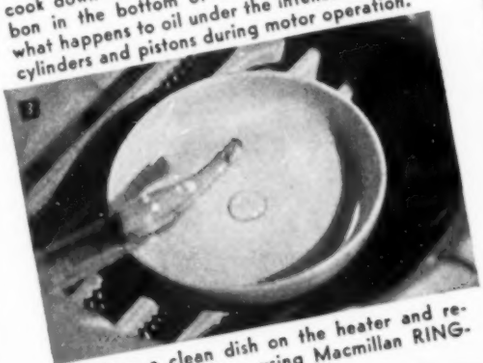
(*One of a Series of Motor Oil Tests Pioneered by Macmillan)



an evaporating dish to the temperature where two drops of a competitive oil not spread but instead cook in a drop ation. Then, put two drops of the oil in dish as shown and—

within a short time the competitive oil will cook down to a hard, black deposit of carbon in the bottom of the dish. This shows what happens to oil under the intense heat of cylinders and pistons during motor operation.

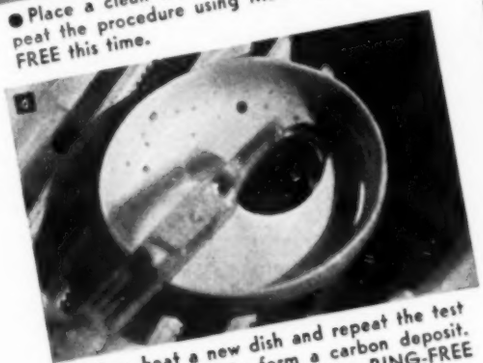
There have been many claims and counter claims about the carbon-forming habits of motor oils . . . so many conflicting claims that the average motor operator does not know what to believe. The astonishing test explained here will show you how to find out exactly how much carbon residue any oil forms and how Macmillan RING-FREE will remove that carbon.



● Place a clean dish on the heater and repeat the procedure using Macmillan RING-FREE this time.

● As Macmillan RING-FREE cooks down it leaves a small brown spot in the dish as shown in the photograph.

● And in a few seconds even that small spot completely disappears leaving the dish clean.



● Now, heat a new dish and repeat the test with the first oil to form a carbon deposit. Then put a drop of Macmillan RING-FREE on the carbon deposit.

● Soon after RING-FREE vaporizes the carbon will disappear from the area RING-FREE touched. Perfect proof that RING-FREE removes carbon.

● A variation—over the carbon deposit, a drop of the competitive oil placed on the left, a drop of RING-FREE on the right . . . with the result as shown above.

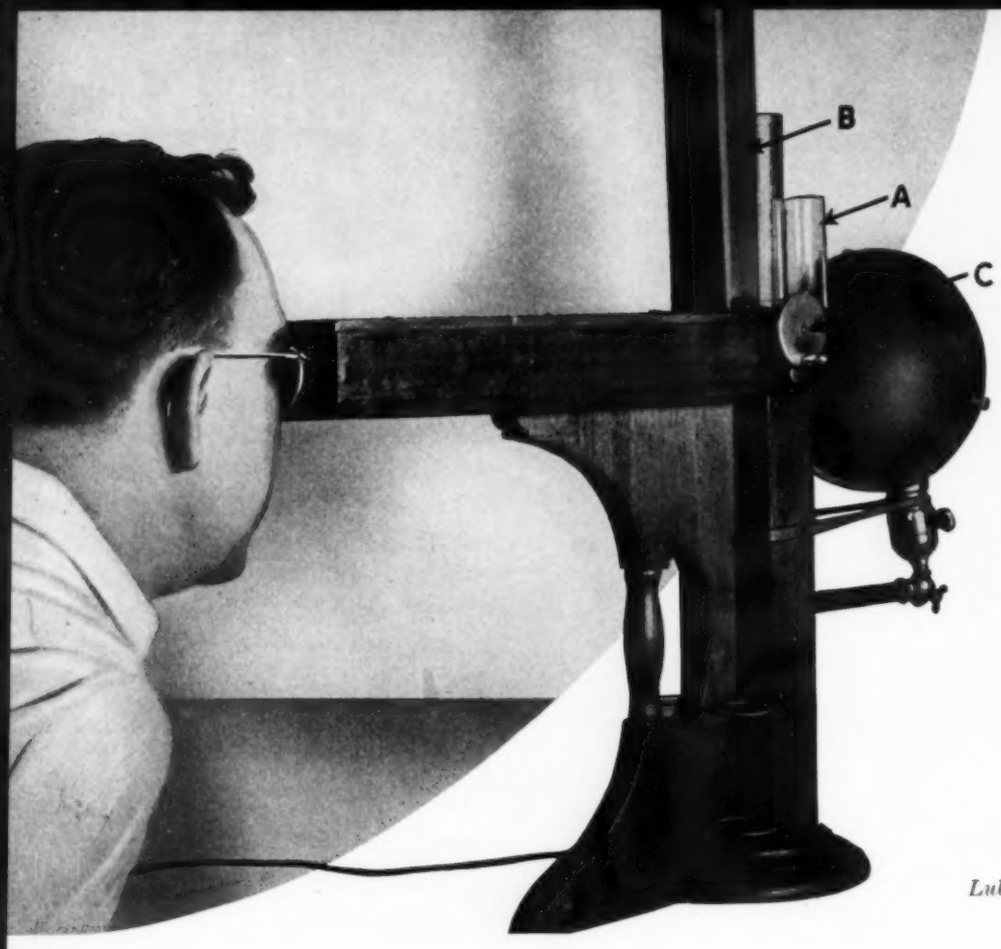
There is the answer! You will KNOW it is true after you run this test for yourself. The Macmillan Man in your town can supply the equipment . . . you supply the oil. Then, realize what it means in fewer motor overhauls and reduced maintenance costs to say nothing of the increased life of the motor and the elimination of carbon knocks.

MACMILLAN PETROLEUM CORPORATION

330 West Sixth Street, Los Angeles, or El Dorado, Arkansas

MACMILLAN RING-FREE MOTOR OIL

1. GREATER FILM STRENGTH
2. HIGHER HEAT RESISTANCE
3. LONGER CLING TO METAL
4. FASTER PENETRATION
5. REMOVES HARD CARBON
6. IS NOT CORROSIVE



Color testing: Oil (sample A) is compared with glass slides in B which can be changed by knob C until one is found to match the oil.

WHAT SOME TESTS OF THE OIL LABORATORY MEAN - - AND HOW THEY ARE MADE - - AN ENLIGHTENING REVIEW OF RUDIMENTS FOR EVERYONE

By A. L. Clayden,
Lubrication Research Engineer

Oil Terms, Oil Tests *and* Their Characteristics - -

ALL lubricating oils are manufactured to meet specifications, which means that when tested by various standard methods, they must have values between certain limits. But conventional specifications do not necessarily fully describe a lubricating oil; in fact they very seldom do so. Nor do conventional oil specifications go further than giving a general indication of the class of service for which the oil is suitable.

Of course, this is true of many other things besides oil. For example, in most cases the most important dimensions of a steel bolt tell its size and to specify, say a half-inch bolt three inches long, would provide an article which would do the work. Supposing, however, the bolt is to be used as an automobile or airplane part, then its every dimension will be accurately specified. It will have to be within a very few thousands of an inch of its nominal size—it will have to be made in steel of a particular chemical composition and possess definite physical characteristics.

Unfortunately we do not yet know how to write specifications for lubricating oils that give anything near as precise a description of the oil as would the specifications for a steel bolt. This is because oil is a very much more complicated substance chemically than is steel.

It is not possible to give any order of merit or order of importance to lubricating oil tests. Where oil is to be used for lubricating purposes, just one characteristic is outstanding and this is its viscosity or body. However good the oil in other respects, unsuitable viscosity might easily render it useless for the particular purpose in view. Viscosity is the term (applied to all liquids) that denotes their resistance to flow; it is probably made conscious to most people by resistance to stirring. Water has a very low viscosity and can be stirred with very little effort, but molasses offers a great deal of resistance.

Let us suppose we have taken two flat surfaces, as for instance, two pieces of glass and placed one of them, wet with a liquid on a table. Then the other is placed down squarely on top of the first piece. If that liquid was water, it would run out very fast—and thus let the two pieces of glass touch each other. If we used molasses, the pieces of glass would remain separated indefinitely and it would need a great deal of pressure on the upper piece to squeeze out the molasses.

Oils, of course, occupy a position intermediate between water and molasses. Following the same procedure with the two pieces of glass and applying a light oil, a little pressure and a little rubbing back and forth will squeeze it out. The heavier the oil, the harder we will have to press and the more vigor-

ously we will have to rub in order to exude the oil film. On the other hand, the top piece of glass will slide over the other piece more freely with the light oil than with the heavy oil. Hence the lubricating engineer's task is to select a thickness and viscosity of oil which cause the best combination between freedom of motion and resistance to being squeezed out.

Fortunately viscosity can be measured very easily. The instrument used is the Saybolt viscosimeter and generally it is nothing more than a small can with a hole in the bottom. This is filled always with the same quantity of oil. The hole is then uncovered and the time taken for the oil to run out is measured, thus giving the viscosity by Saybolt numbers, which are an arbitrary scale.

Of course the viscosity of all liquids, even water, changes a great deal with temperature. Water is so thin that the difference between cold water and hot water is not easily perceived, but it is quite easily measured with accurate instruments.

With oils the differences in body due to temperature are very much greater, so it is necessary to make the viscosity measurement at precise temperatures. For this reason, the sample container (which is actually a rather tall and thin brass cylinder) is surrounded by a large bath containing water or oil which by automatic electrical means can be kept at a very precise temperature. The temperature is almost always 100 deg. for lighter oils and 210 deg. for heavy oils, and for this there are two reasons.

The Matter of Temperature: The first is that the orifice at the bottom of the sample container has to be made very accurately as to size and the lightest oils will run out in a little more than half a minute. A moderately heavy motor oil in the same instrument at 100 deg. would take about ten minutes, and very heavy oils would take an inconveniently long time. The difficulty might be overcome by using a second instrument with a large orifice, but it has proved much more convenient to raise the temperature whereby an oil which would take ten minutes at 100 deg. is so thinned that it would only take about a minute at 210 deg. The second reason for using two standard temperatures is that, generally speaking, light oils are actually used at moderate temperatures and heavy oils find their greatest sphere of usefulness at considerably higher atmospheric temperatures.

So in preparing an oil specification, an engineer would always begin with the viscosity because that would tell him the way in which the oil would behave in lubricating the machine to which it was to be applied.

After viscosity, the next most important item will depend entirely upon the nature of the use. Oils are used on machinery in two ways. The original method was to supply some oil where it was needed, allow the machine to run until that had been used up and then apply some more—as, for instance, is done with a lawnmower. As soon as the oil that has been put in with an oil-can has been rubbed out of the bearings, it has ceased to be of any use and is replaced by fresh oil. The second method is such as we have in an automobile engine where a certain supply of oil is circulated by pump and used over and over again.

For machines of the first class, almost nothing but viscosity is of any importance. In some textile work the next most important characteristic after viscosity is very pale color so that any stains made on the yarn will be either negligible or readily removed.

In the case of a gasoline motor, the durability of the oil is undoubtedly the second most important characteristic. And this brings us to a class of tests quite different from that of viscosity. Putting it in more precise terms, viscosity is the test of a physical state just as the diameter of a rod is a physical dimension. A half-inch rod might be made of anything from steel to cheese—a liquid with a particular viscosity could have a tremendous variety of chemical compositions. Consequently all the other tests for oil after viscosity are really chemical tests.

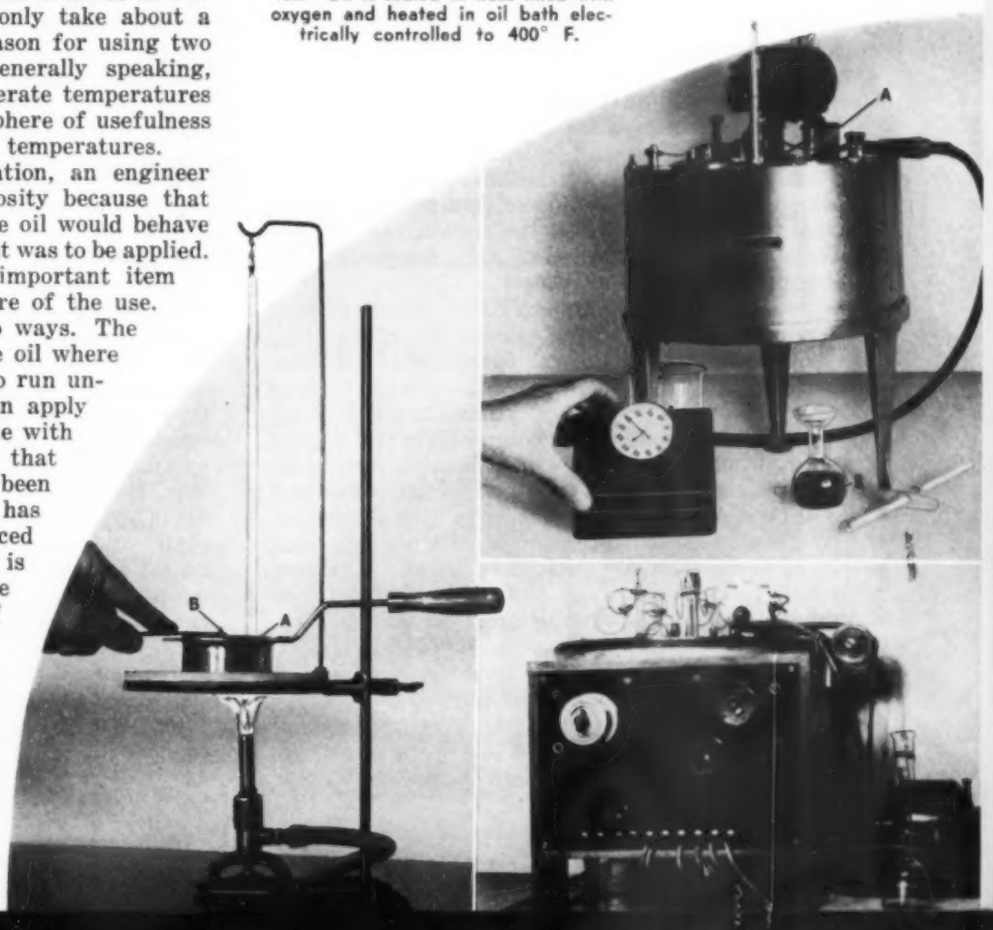
Every variety of petroleum under suitable conditions combines with the oxygen in the air, after which it ceases to be petroleum and becomes something different. This tendency is an advantage sometimes and a disadvantage at other times. For instance with gasoline and kerosene, the utility of the product is the extreme readiness with which it will burn—that is to say, combine with oxygen.

On the other hand, an ideal lubricating oil would refuse to combine with oxygen under any conditions. Therefore, in refining *fuels* from any particular crude, we do everything possible to enhance their tendency to oxidize, whereas in making *lubricating oils* from the same crude, we must do everything possible to coun-

(*Please turn to page* 38)

Directly below: Saybolt Viscosimeter Cup for oil sample at A is held at fixed temperature by electrically-heated bath. Sample drains into flask B, the time in seconds being the viscosity.

At bottom: Sligh oxidation apparatus. Oil is sealed in flask filled with oxygen and heated in oil bath electrically controlled to 400° F.



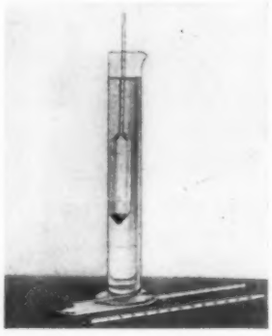
Flash-Testing (At right). Oil is in cup A. The torch with a very small gas flame at B ignites oil vapor when the flash temperature is reached.

teract this tendency.

Resistance To Oxidation: The lubricating oil test for resistance to oxidation has not yet been fully standardized. There are several methods in use and they all involve sealing up a sample of oil with either oxygen or air, heating it for a fairly long time and then determining the extent to which the oxygen has combined with the oil.

Probably the most generally used method today is known as the Sligh Oxidation test, in which a very small amount of oil is sealed up in a glass flask full of oxygen and then kept in an oil bath for three hours at 400 deg. At the end of this time after the bath is cooled, the oil will be found to have thickened considerably and usually will contain some solid carbon. The amount of such solid material is determined by filtering and accurately weighing on a chemical balance, with the weight of solid formed during the three-hour cooking being then written down as the Sligh number for that particular sample.

This test has proved of great value in oil refining developments for the past ten years. It is particularly significant in the case of motor oils because while motor oils are not often heated to 400 deg., they do operate at temperatures over 200 deg. and the effect of many hours at 200 deg. is similar to that of a few hours at 400 deg. While the Sligh number is not included in many specifications today, it is gradually coming in use and probably will be used much more extensively in the future.



USING a hydrometer to measure the "gravity" of any liquid. The lighter the liquid, the deeper in the instrument will sink.

Carbon Residue Test: We now come to an almost equally important test—in fact for some purposes even more important than the Sligh number—and this is the test for what is commonly called carbon content. Actually it does not tell the amount of carbon in the oil, but is a test for the amount of solid carbon which will be formed when the oil is burned in a confined space. The real name of this test is the carbon residue test and the substitution of "content" for "residue," while common practice, is quite wrong.

The most common cases where the carbon residue is of importance are in the lubrication of gasoline engines, Diesel engines and the operation of air compressors.

The test consists of placing a small amount of oil in a porcelain crucible which is then placed in a steel box. The whole apparatus is then heated, usually by a gas flame, and shortly after, the oil takes fire and burns in the presence of a rather restricted amount of air. When it is completely burned, the apparatus is allowed to cool, the crucible removed and the amount of carbon is weighed. Then the ratio of the carbon formed to the weight of the original oil sample gives the carbon residue number.

In this respect, oils differ very greatly. Universally, heavy oils form more carbon than light oils, but heavy oils made by suitable methods may give carbon residues very much less than light oils made from unsuitable crudes or by unsuitable refining processes. Rather curiously the carbon residue has no connection with the oxidation test just described. An oil might have a very high resistance to oxidation and yet if actually set on fire and burned might produce a great deal of carbon residue.

The carbon deposit formed in a gasoline motor is not directly in proportion to the carbon residue test, but several oils having definite residue tests will give engine carbon in exactly the same order of merit. Thus this test is very important for motor oils.

Two tests which are usually performed on lubricating oils and have relatively little significance are those of so-called flash and fire. In both these tests, the oil sample is heated in an open metal cup, a thermometer being suspended directly above the sample. As the oil temperature rises, the operator brings toward the surface of the oil a very small gas flame and, when the oil is hot enough, a little puff of flame will occur, indicating that the oil is beginning to give off inflammable vapors. The temperature at which this occurs is called the flash point.

The heating is continued, usually for about another 40 deg., at which point instead of getting a puff of flame which dies out of its own accord, the whole sample takes fire and continues to burn. Flash point is quite important as a test for inflammable liquids. It was devised originally to test the safety of kerosene.

Kerosene which flashes at too low a temperature will form too much vapor when used in a lamp, as a consequence of which the lamp may flare up or even explode. Low flash points are a hazard in transportation, consequently light fuel oils such as are used for household burners are controlled to have a fairly high flash. On the other hand such fuels must not have a flash which is too high or they will not ignite readily when the burner starts to run.

Lubricating oils, of course, do not give off inflammable vapors until they are much hotter than they are ever likely to get. However, oils of definite chemical types have definite characteristic flash points in proportion to their viscosity. Three oils made of three different crudes, all of the same viscosity, would have different flash points so the flash is one of the several means for identifying an oil as to type. Fire point on lubricating oils probably has no significance whatsoever. And the fact that it appears in most specifications is due to a habit formed when kerosene was the principal product of petroleum.

Color is another standardized test which like the flash test almost always has its only significance as an aid to identification. Color of oils during the various stages in refining them may be of great significance and color is significant as indicating purity in a finished oil if it is known that the color is natural. But relatively few finished lubricating oils have natural colors. Dark oils can be bleached by chemical treatment, which treatment may actually be injurious to some other qualities of the oil.

(*Please turn to page* 66)

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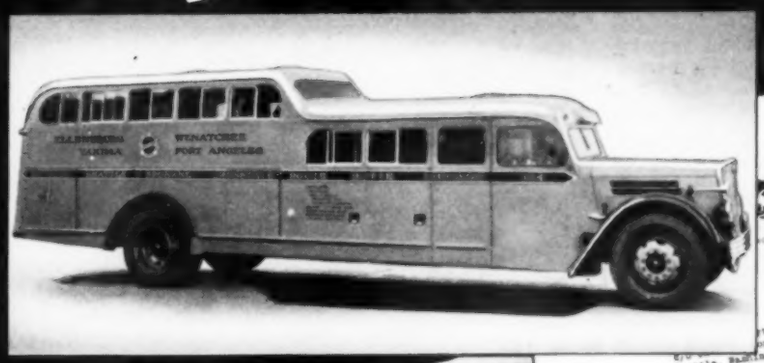

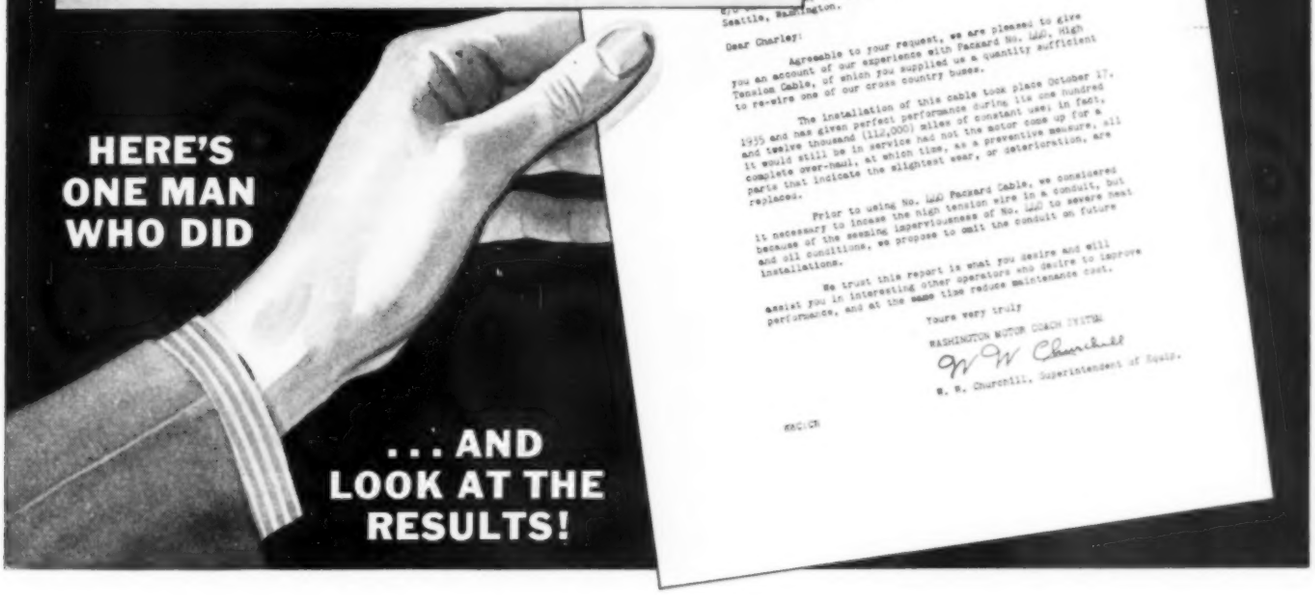

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Meat Packer Designs Own Refrigerated Truck Body

•

J. ALVIN WEILAND, Vice-President of Weiland Packing Company, Inc., Phoenixville, Pa., gives details of refrigerator job that uses ice successfully, without mechanical circulation system or external control . . . It's automatic and foolproof, he says.—Editor.

THE WEILAND Packing Company of Phoenixville, Pa., have been meat packers of fresh and smoked pork and pork-products for many years. We have spent much time and money in equipping our plants with machinery and refrigeration facilities for manufacturing and handling pork and pork-products. We have even built and patented several special machines for the production of pork specialties. The safe and economical distribution of 70 varieties of both smoked and fresh pork-products, however, presented a problem that called for thorough study.

In tackling this particular problem we enlisted the aid of our body builders, The Boyertown Auto Body Works, Inc., of Boyertown, Pa. After ten years of combined planning, experimenting, and actual service on the road, we believe we have arrived at a practical answer to the distribution problem and have developed a body for the hauling and selling of a combined load of fresh and smoked meats. There are three major problems which are solved in this body:

1. The fresh and smoked meats are kept in separate compartments. Fresh pork should be maintained at a safe temperature of 45° or lower, whereas, smoked meat can profitably be kept at a temperature of 70°.

2. Refrigeration for the fresh pork compartment must be capable of holding the meat products at 45°. In our body, water-ice (using NO salt or brine) has proven the most economical and convenient means of refrigeration. By means of a simple, efficient ice-unit and divided-compartment arrangement, 50 pounds of water-ice maintain a temperature of 45° from 12 to 15 hours, with an average of 135 compartment door-openings! An entirely new principle (protected by patents) makes this possible and practical.

3. The unsold meat products, at the end of the route, are kept ON THE TRUCK over night, thus eliminating the cost of extra handling and the dissention among the salesmen as to the disposing of unsold meats. Each driver must sell the following day what he has failed to sell the previous day. The meat is kept in a better condition by keeping it at a constant temperature on the truck until sold.

The body is divided into two main divisions—the refrigerated, insulated fresh-meat compartment at the front part of the truck and the insulated smoked-meat compartment in the rear. There is an aisle between these two major compartments into which the driver enters through a side-door on the curb-side. There are two shelves in the rear smoked-meat compartment. These shelves are solid and extend the full width and length of this compartment. The front fresh-meat compartment is divided into three solid-shelf compartments each of which has a small 18" x 18" door for access to the meats. This division of the fresh-meat compartment is one of the features of the body and is done for the following reasons:

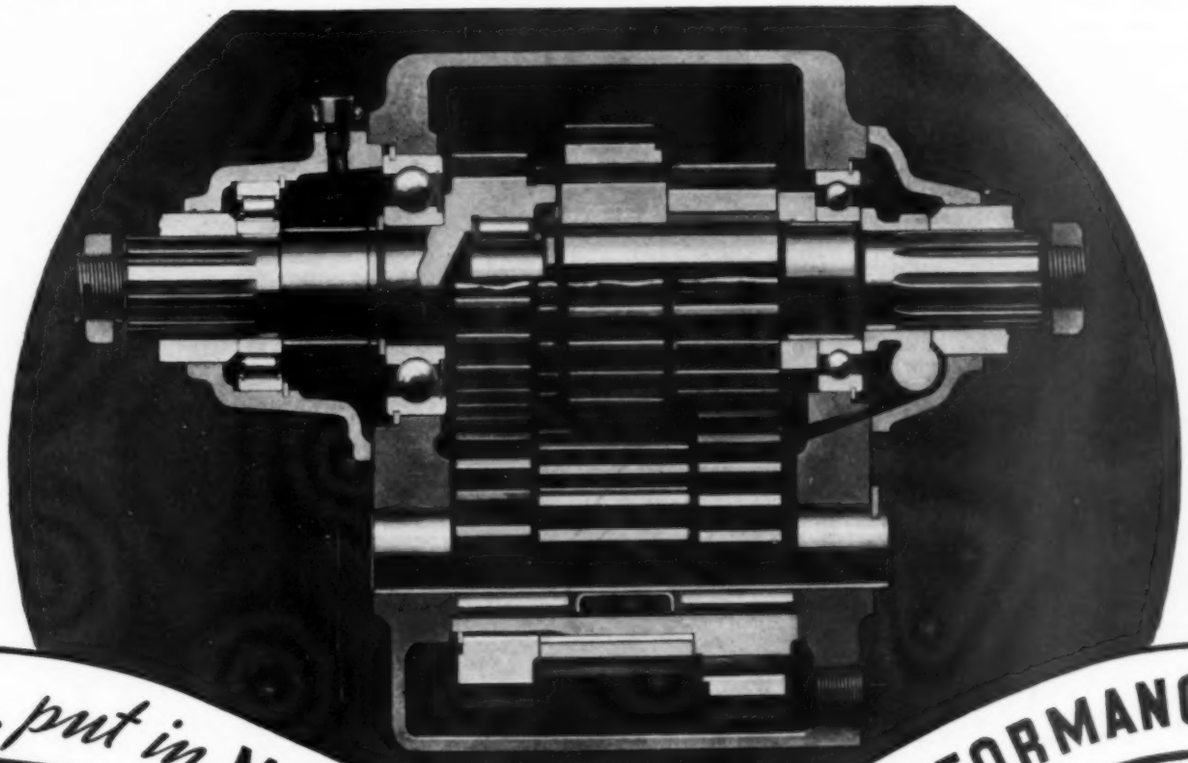
In the first place, the temperature loss within the compartment is kept to a minimum. Instead of opening the entire refrigerated compartment at each stop, only that compartment in which the desired product is located is opened and consequently, the temperature of that compartment only is subjected to a heat change.

Now, the more meat that is stored on each shelf, the less air-space is left in each individual compartment; therefore, only a small air-space is actually affected by each door-opening. Contrast this with a one-compartment body with slatted rack shelves. When the driver opens the door to enter the truck, the entire air-space within the body is subjected to a temperature change; and, since the air can circulate around or through the meat-load, the entire meat-load is subjected to a temperature loss.

Some packers pre-chill smoked meats before putting them into a body with the fresh meats. Inasmuch as fresh pork should be kept at a constant temperature from 36° to 45° and smoked meat has a tendency to lose its bloom or discolor below 60°, these two should never be carried in the same compartment. Our trucks carry a variety of as many as 70 different kinds of fresh and smoked meat and cheese products. Any of these can be

(Please turn to page 58)

EQUIP YOUR TRUCK FOR PROFIT



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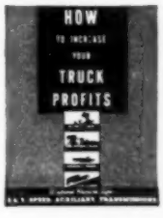

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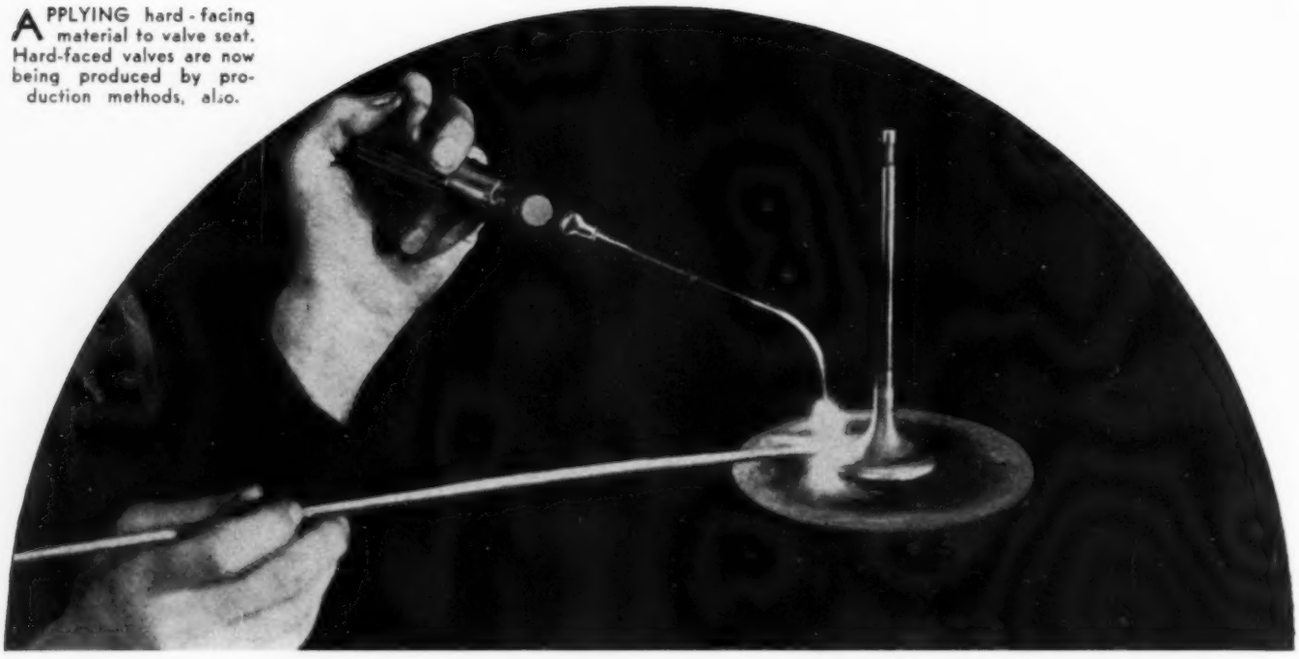


APPLYING hard-facing material to valve seat. Hard-faced valves are now being produced by production methods, also.

"Hard-Facing" Parts to Combat Wear

PROTECTION of wearing parts with wear-resistant alloy, both as an original-equipment and a salvage operation, is proving itself through experience in many fleet shops. Your welding equipment does the trick.—Editor.

SEVERAL years ago, in fact as early as 1932, this publication called your attention to the feasibility of applying hard-facing materials (wear-resistant alloys) to the wearing surfaces of automotive parts. As a salvage operation it has been found that this process resulted in many parts giving several times more service than originally.

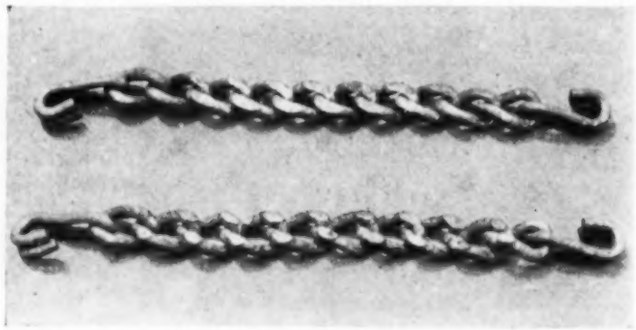
Today we find that even in original-equipment this process is being successfully applied, and such items as valve-seats and even valves are now coming through, in certain heavy-duty units, with wearing surfaces tipped with tungsten-carbide. Incidentally, this material is also used in the field of machine tools—a good example of which is the tungsten-carbide-tipped cutter such as is found in modern portable cylinder boring-bars. The trade-name of this material, as you probably will recall, is "Stellite."

As a salvage operation, we find that hard-facing materials can successfully be applied to such things as air-compressor flapper valves, clutch fingers, clutch pressure-plates, etc. Clutch pressure-plates, for instance, are frequently built-up in the three spots approximately ¾" in diameter where the ends of the clutch adjusting-studs bear on the plate. Some fleet shops are building up these worn spots with bronze and in severe service it is sometimes found necessary to build them up very frequently. When hard-faced with the special wear-resistant alloy, clutch pressure-plates have been observed to last over a year under extreme conditions of service.

Since this process is comparatively new and not very generally known, we have been requested to call it to your attention once more, and you will find other typical examples of "hard-facing" economies quoted in the following paragraphs:

A mid-western state highway department used to have trouble with truck anti-skid chains. During the winter the trucks are in use practically all the time for snow-removal. When there were frequent bare spots on the paved roads, anti-skid chains wore almost all the way through in one day. It was found that hard-faced chains would last about a week. Therefore, after flats were worn on the links, eight links of each cross-chain were hard-faced at a cost of about 22 cents per cross-chain.

A large trucking concern in New York ran two anti-skid chains for 265 miles in a comparative test last winter. One, hard-faced with this tungsten-carbide hard-facing material, wore more from the tire on the steel, than from concrete against the alloy. Actually, after the test, the drops of welded-on alloy were only slightly flattened. (*Please turn to page* 43)



THE cross-chain at the bottom was protected by welding a hard-facing alloy to each link by the oxy-acetylene process. The chain at the top was not treated. Note the difference in wear after a fair test.

The steel chain in the same service was almost completely worn through. United Parcel Service is the fleet which made this particular test.

An infinite number of small parts have been economically protected by this hard-facing alloy of cobalt, chromium and tungsten. Clutch release yokes and housings, and water pump shafts are typical examples.

In one place inside the aluminum transmission case of a well-known make of bus, the shifter lever rubs, gradually wearing a hole through the aluminum case. It has been found that a piece of this hard-facing welding rod, ground with a flat side, can be sweated with solder to the section being rubbed. When the transmission case is protected by being hard-faced in this manner, the lever will not wear through the case during the life of the bus, it is claimed.

Brake drums have also been hard-faced with very successful results. Since a gear is an integral part of certain types of brake drums, one new set of brake drums costs approximately $85. The entire cost of rebuilding the braking surface with hard-facing alloy, including material, labor and gas, and rough and finish-grinding, according to one company's figures, was slightly over $45 for the set. While these brake drums have been in service for but a short time, the company is certain that they will probably outlast new drums at least four times. They consider it a very economical application.

Universal joints are sometimes a source of much trouble, on account of wear. If it is difficult to lubricate the trunnions, wear can be very serious. In some old designs, the bearings, even during normal service, became so hot that the temper was drawn from the steel. Hard-facing the trunnions has been found to overcome this difficulty to a large degree.

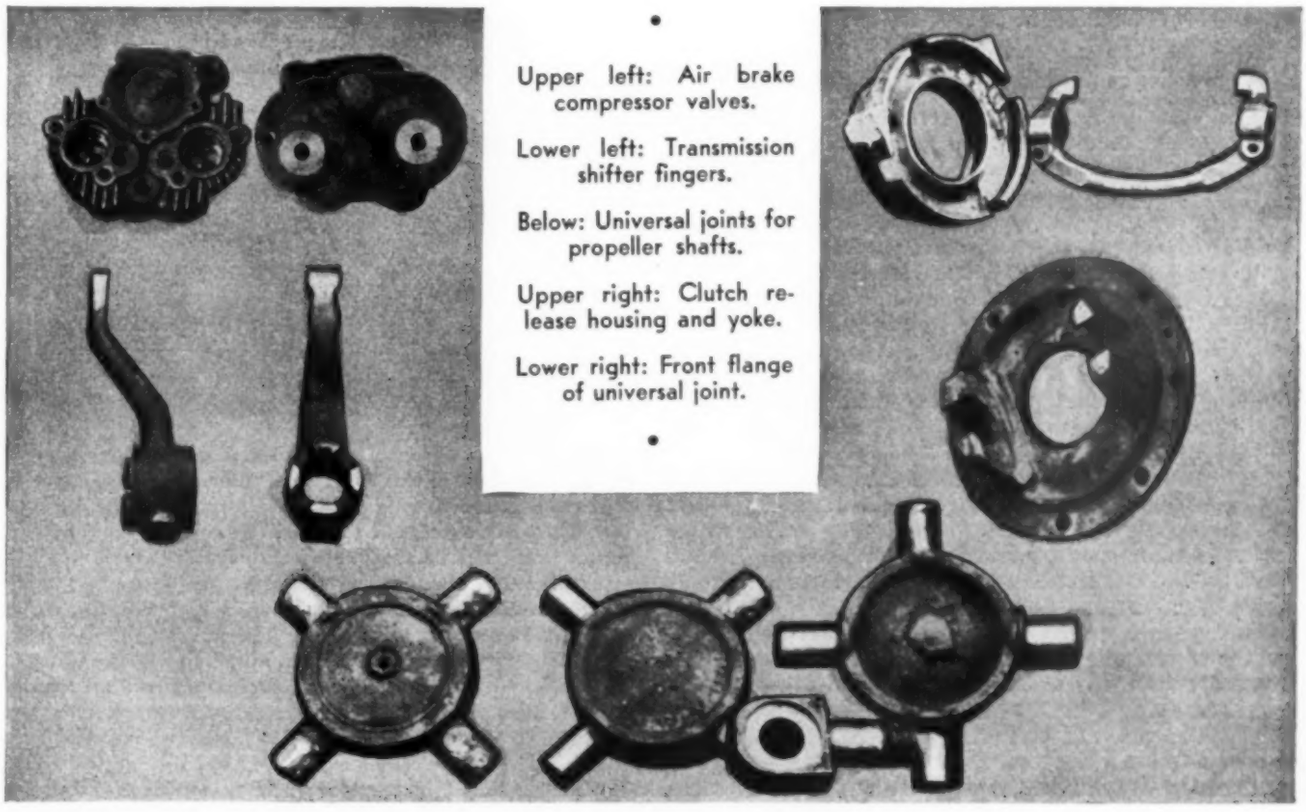
Probably the most general use of hard-facing with respect to the upkeep of trucks and buses is for armoring exhaust valve-seats and valves. Prominent manufacturers of heavy-duty trucks and buses have adopted exhaust valve-seat inserts consisting of an outer ring of special alloy steel faced with Stellite. The excellent wear-resistant and red-hardness qualities of this cobalt-chromium-tungsten alloy reduce valve pounding and the need for adjustments to a minimum, it is claimed.

Valve-seats of course, must resist heat and corrosion; they must not scale, or pit; and if the material of the seating surfaces is resistant to erosion and "pounding in" so that the valve does not sink deeper into the block, fewer adjustments will be required. Usually, the valves on such equipment, if not hard-faced too, should be ground every 60,000 to 80,000 miles, certain truck engineers advise, but the seats need only to be touched up occasionally so that the valves will seat properly.

If a valve-seat is pounded in, the clearance between the valve stem and the tappet, naturally, is diminished. Clearance must be maintained for proper and economical operation of the motor. If valve clearance is not maintained, there will be "blow-by" of the burning gases past the valve head when ignition takes place, and even the best valve steel is liable to suffer somewhat from such treatment. To prevent the possibility of valve "blow-by," the valves should be adjusted at reasonable intervals. This is another expensive and troublesome item which is almost entirely eliminated by the use of hard-faced seats and valves, it is claimed.

Perhaps more satisfactory results can be obtained

(*Please turn to page* 74)



Upper left: Air brake compressor valves.

Lower left: Transmission shifter fingers.

Below: Universal joints for propeller shafts.

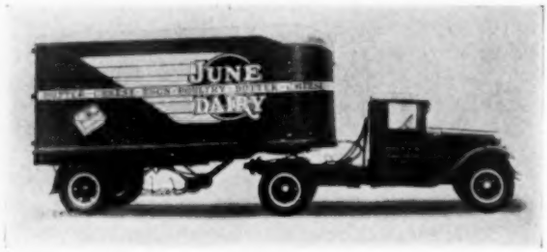
Upper right: Clutch release housing and yoke.

Lower right: Front flange of universal joint.

Tractor-Trailer Facilitates Warehousing

FOR service between their factory and six warehouses in the New York metropolitan area, June Dairy Products Co., Inc., of Newark, N. J., has recently placed into operation the unit illustrated here.

The trailer is an 18-foot Fruehauf, on which is mounted a deluxe insulated body made by the same



manufacturer. This job is drawn by an A-5 International tractor, converted especially for this purpose.

The body is insulated in sides and ends with 3-inch Dry-Zero sealing pads, while 3-inch Waddex insulation is used in the ceiling, and 2-inch insulation in the floor. Outside sheathing is of steel sheets, the inside of the body being lined with plywood, with metal floor.

Refrigeration is by means of wet ice bunkers, with a capacity of 600 pounds. Inasmuch as the company's merchandise is usually loaded directly from refrigerated boxes, the load is pre-cooled and proper temperature is maintained without great difficulty.

This job makes an attractive appearance on the road, the color-scheme being royal blue with the June Dairy trade-mark in red and the modernistic wing-design in silver leaf. The roof is finished with aluminum paint. Incidentally, this unit was on exhibit at the Newark Truck Show last November.

●

Six Cities Get Safety Council Awards

THE National Safety Council recently outlined details of the traffic safety programs which made winners of six American cities in the Fifth National Traffic Safety Contest conducted during 1936 by the Council.

The contest results were announced after the judges had sifted summary reports of the year's work from competing cities—1,013 cities were enrolled. The judges were Thomas H. MacDonald, Washington, D. C., chief of the U. S. Bureau of Public Roads, chairman; Dr. Miller McClintock, director, Harvard University Bureau for Street Traffic Research; and Dr. C. H. Watson, New York, medical director for The American Telephone and Telegraph Co., and president of the National Safety Council.

New York City was awarded the grand prize for the city, regardless of population, which, in the opinion of the judges, "came nearest to doing for traffic safety the maximum that practically could be done in that city." New York also was ranked first among the 13 cities of more than 500,000 population.

The scoring, based on elaborate reports submitted by the cities, allowed a maximum of 50 points for a low death-rate plus a reduction in that death-rate from the average for the three previous years; five points for completeness in accident-reporting and maintaining a permanent accident records file; 10 points for safe traffic planning and construction; 15 points for effectiveness of traffic law enforcement; and 10 points each for development of child safety and public safety education programs.

Each municipality was asked "to get the facts about accidents, to find out how many there were and where, when, how and why they occurred."

Winners in other population groups were:

Kansas City, Mo., in the 250,000 to 500,000 population group; Omaha, Nebr., in the 100,000 to 250,000 group; Jackson, Mich., in the 50,000 to 100,000 group; West New York, N. J., in the 25,000 to 50,000 group; and Wilmette, Ill., in the 10,000 to 25,000 group.

The judges also named a special honor roll of 139 cities between 5,000 and 10,000 population which passed 1936 without a single accident fatality.

●

Safe-Driving Pays, With Awards of Merit

ENCOURAGING highway accident-prevention among fleet operators employed by its policyholders, the American Mutual Liability Insurance Company has recently presented award-of-merit cards to four drivers of the Lincoln Dairy Company of Hartford, Conn.

The drivers honored, each of whom completed a full year without a reportable accident, were Chris Larsen, Frank Wordig, Einar Neilsen, and Joseph H. Sweeney.

●

Truck Tests Pennsylvania State Scales

TRUCKERS in the State of Pennsylvania have no comeback when convicted of operating an overloaded truck. The taking to the road of this new traffic type Mack means accurate enforcement of load regulations. Purchased by the State of Pennsylvania, it is used by the Department of Internal Affairs which in turn supervises the Department of Weights and Measures to test scales throughout the state.

For the purpose of testing trucks for overweight there are over 5,000 of these scales. By this system it is therefore possible to sustain convictions against operators of overloaded trucks since highway officers know that their scales are authoritative.

Equipment includes a horizontal crane, a small dolly on pneumatic tires, and a complete set of weights which are guaranteed to be correct. In operation, the practice is to go to a set of scales and balance them. The weights are then lifted from the truck to the ground, picked up by the small dolly and carried upon it. The weights are thereby taken to the scale and the test is made. They are then returned by the dolly to the truck and lifted back into place by the crane.

Here's the truthful answer to all skeptics

THE whole truth about high compression can be stated briefly:

By increasing the compression ratio of the engine, you get more power out of every gallon of fuel because of increased engine efficiency.

Since 1934, when regular grade gasoline of high anti-knock value (containing lead tetraethyl) was made available universally, commercial vehicle designers have utilized this opportunity for power gain by designing high compression engines.

You can increase your operating efficiency by using that added power in one of two ways:

1. FASTER SCHEDULES. The added power of high compression gets vehicles up hills faster, permits operation in higher gears, moves the same load faster.

2. BIGGER PAYLOADS. If faster schedules are not desired, the added power can be used to carry larger payloads, because increasing horsepower through high compression adds nothing to engine or chassis weight.

Whether you have low compression or high compression engines in your present fleet of trucks or buses, find out the gains you can make by taking full advantage of high compression. We welcome inquiries about the relation of fuels to the efficiency of your truck and bus engines. Ethyl Gasoline Corporation, Dept. A, Chrysler Building, New York, manufacturers of anti-knock fluids for premium and regular gasolines.

HIGH COMPRESSION ADDS MORE POWER

• NEWS of the TRUCK INDUSTRY •

A.T.A. Invites Private Carriers to Join

SEEKING to enlist the cooperation of all truck owners in its fight against unreasonable motor vehicle laws, state and national, the American Trucking Associations, Inc., issued, last month, an invitation soliciting the affiliation of private carriers. . . . The National Highway Users Conference points out that private carriers are entitled to separate organization in matters concerning them; that the establishment of a separate organization is not practical at this time; and that the private carriers division of the ATA provides a practical means of accomplishing this purpose.

•

New IHC Branch in New York

INTERNATIONAL Harvester Company announces, for the convenience of truck owners in New York City, their new Manhattan factory branch service station, which is open 24 hours a day, 7 days a week. . . . In fact, the keys to this service station have been "thrown away," to quote F. J. Harmon, manager of the branch. . . . In establishing this service station, International adds another link to its service organization, now having eight branches in the New York metropolitan area. . . . The new branch is located at 42nd St. & 11th Avenue.

•

Diamond-T Sales Up in First Quarter

DIAMOND-T Motor Car Company, during the first three months of 1937, sold a total of 4,618 trucks, according to C. A. Tilt, president. . . . This is an increase of 48 per cent over last year's sales of 3,134 trucks in the same period. . . . March sales this year amounted to 1,805 trucks, making it the second largest month in the history of the company.

•

Tranter to Distribute Continentals

CONTINENTAL Motors Corporation of Detroit announces the appointment of the Tranter Manufacturing Company of Pittsburgh, Pa., as distributor for their industrial engines in the Western Pennsylvania territory. . . . The Tranter Company recently celebrated its 100th year of business activity.

Auto-Lectric Handles Diesel Service

UNITED American Bosch Corporation, Springfield, Mass., has recently appointed Auto-Lectric Distributors, 1991 Broadway, New York, N. Y., as sales and service representative for American Bosch Fuel-Injection Equipment for Diesel engines in the New York metropolitan territory. . . . A complete stock will be carried and special equipment is now being installed for testing and reconditioning all types of Bosch fuel-injection pumps and nozzles. . . . Two factory-trained men will be assigned for this specialized work. . . . Auto-Lectric Distributors, under the leadership of genial Matt Ury, also renders sales and service work on other American Bosch automotive products.

•

Larger Quarters for H. S. Watson Company

INCREASED headquarters space has been acquired by the H. S. Watson Company to handle its rapidly growing sales of auxiliary transmissions.

. . . The Company now occupies an entire building at 1145 Harrison Street, San Francisco, Calif., as shown in the accompanying illustration. . . . Nationwide distributing facilities are now enjoyed by this company. . . . H. S. Watson, president of the company, is shown in the inset.

•

Caterpillar Executive Resigns June 1

H. P. MEE, vice-president of Caterpillar Tractor Company, Peoria, Ill., will resign that position effective June 1st. . . . Mr. Mee's citrus holdings in Southern California have been expanded, resulting in his decision to transfer his activities there.

FWD Announces Expansion Program

PURCHASE of $100,000 worth of new production equipment by the Four Wheel Drive Auto Company of Clintonville, Wis. and Kitchener, Ont., is being undertaken due to a notable increase in the company's sales volume, according to Walter A. Olen, president and general manager. . . . This expenditure will provide the company with a new heat-treating department which is now being installed; new lathes; gear-cutting machinery; and other production equipment. . . . Sales, since July 1, 1936, have shown a gain of 48 per cent above those of the fiscal year of 1935-1936.

•

Reo Elects Officers; Enlarges Board

AT a recent stockholders' meeting, the board of directors of Reo Motor Car Company, Lansing, Mich., was enlarged to nine members. . . . At a directors' meeting, immediately following the stockholders' meeting, the following officers were elected: Donald E. Bates, president and general manager; George E. Smith, vice-president and assistant general manager; George L. Brown, secretary and treasurer; and Dean M. Parsons, assistant secretary-treasurer.

•

New Fifth-Wheel by Fruehauf

FRUEHAUF Trailer Company, Detroit, Mich., announces a new 36-inch fifth-wheel, with specially moulded rubber mounting and only four moving parts. . . . Several new features are incorporated in this, including non-sway design and a ribbed construction which is said to give ample strength without excessive weight.

•

Chevrolet Promotes Four Men

CHEVROLET announces four additional promotions in its sales organization. . . . F. L. McClure, formerly regional truck manager of the southwest region, comes to the central office as assistant truck manager in charge of the western half of the United States. . . . H. Z. Wellinger, former assistant zone manager in the Denver zone, has been appointed assistant retail selling manager in charge of used cars. . . . E. F. Hayes, recently retail selling manager of the southwest region, has been named assistant retail selling manager in charge of used cars. . . . T. E. Brents, Jr., formerly retail selling manager of the Dallas zone, has been named to a position in the retail selling department where he will train used car selling managers and salesmen.

•

Doling Now Sales Manager in New York

AUTOCAR announces the appointment of Charles E. Doling as sales manager of their New York District, which includes branch offices located in Manhattan, Brooklyn, Bronx, Paterson, Jersey City and White Plains. . . . Mr. Doling is vice-president of The Autocar Sales & Service Company, Inc., and has been associated with Autocar since 1928. He has been a member of the New York sales organization for the past three years.

IT TAKES HUNDREDS OF TRUCKS TO DELIVER ME

I GIVE EVERY HATHAWAY TRUCK A FINISH OF *Gleaming Beauty*

FROM New England to Wisconsin, the House of Hathaway is known for its fine bakery products. It's known, too, for the clean and neat appearance of its delivery vehicles.

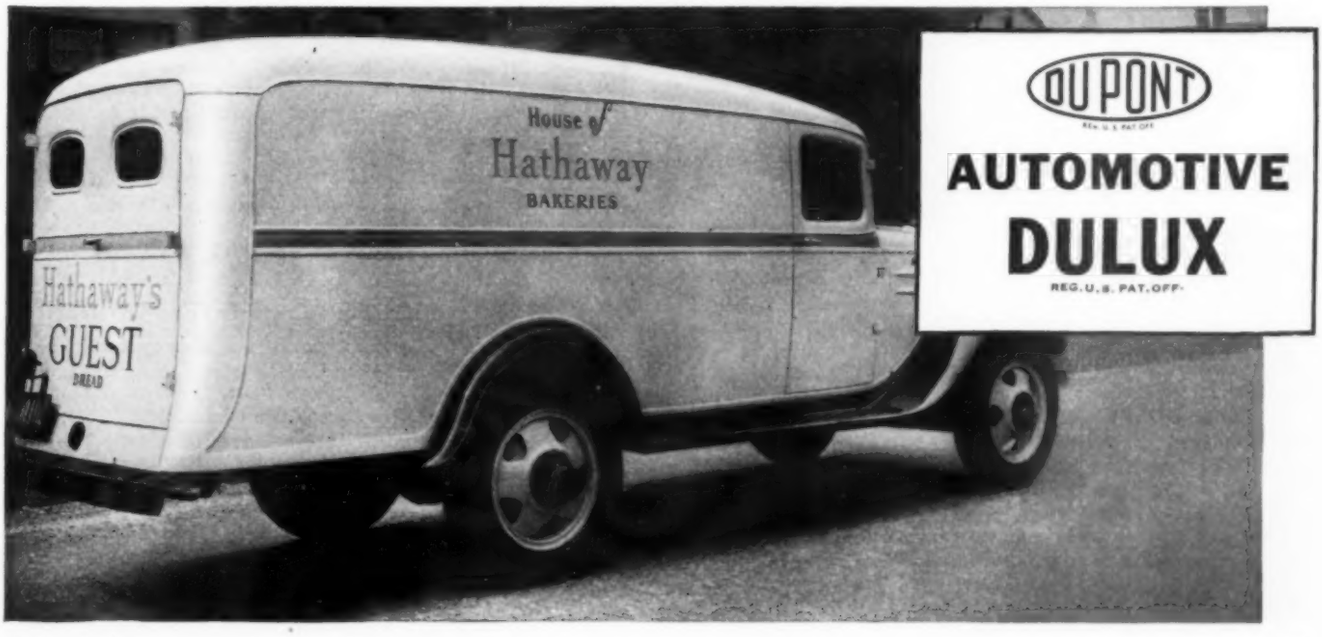
Like so many other fleet operators, Hathaway has found that DULUX gives trucks a finer appearance. It makes every truck a handsome, business-building Hathaway advertisement wherever it's seen.

But more than that, DULUX *keeps repainting costs down.*

DULUX is *durable*, as well as beautiful. It keeps its original high gloss and smooth surface a remarkably long time. It materially lengthens the time between visits to the paint shop.

DULUX can truly "take it." It stands up under merciless exposure to all kinds of weather, snow, sleet, hot suns, dust-driving winds, heat, cold, traffic gases, grease and oil stains, sharp blows. It is highly resistant to chipping and cracking.

Here is the finest finish for beauty and economy. DULUX can be applied either with brush or spray right in your shop. Or an Authorized DUCO-DULUX Refinisher can apply it for you. A du Pont representative will be glad to give you full information and prove how DULUX will lower maintenance costs on your trucks. E. I. du Pont de Nemours & Co., Inc., Finishes Division, Refinish Sales, Wilmington, Delaware.



LETTERS

TO THE EDITOR

NEW MEMBER FOR THE "CLUB"

● *Dear Mr. Fischer:* We are sending in, for the first time, the questionnaire from this month's FLEET OWNER, which, incidentally, we look forward to receiving each month and enjoy the articles therein, which seem to cover every line regarding our industry.

In the past I have always gone over FLEET OWNER personally, and have then handed them on to my truck foreman, James K. McComsey, and he in turn hands them over to the shop foreman, Arthur Cochran.

We have never, up to the present, participated in your Question-of-the Month Club, but have always enjoyed that department. However, I shall call the attention of my men to this in the future and will suggest that they participate. . . . We extend our appreciation and best wishes to you in your good work.—*A. Duie Pyle, Storage Company, Coatesville, Pa.*

●

LOOKS FOR OUR COMING

● *To the Editor:* I have received lots of good help from your magazine, FLEET OWNER, and hope to continue to receive it. . . . I pass it on to our men in the garage and they all look forward to its coming each month.—*L. R. Denicke, U. S. Forest Service, Madison, Wis.*

●

RE N. Y. TRAFFIC RULES

● *Dear Mr. Fischer:* The following comments on the New York City Traffic Regulations which recently were put into effect might be of interest to other readers of FLEET OWNER:

1. Elimination of Right Turns on Red Lights . . . . While this regulation might have been justified for certain busy intersections, these points are so few, by comparison with the many that are entirely unnecessary, and are merely an additional traffic "annoyance", that it seems to many operators that it would have been much better if it were handled the other way around—that is, prohibiting "turn-on-red" *only* at the few essential points . . . . It is questionable, even at these points, if it isn't more dangerous to pedestrians (for whom the new regulation was reputedly written) to have a car turning on green (right or left) loom up in back of them, when they are partly across the street, proceeding with green . . . There is also the extreme hazard to the motorist in attempting to cut through traffic in trying to "turn-left-on-green", now that it is prohibited on red. This hazard is a very real one . . . . Certain intersections are being designated (by newspaper announcement) where "turn-on-red" is permitted. What is the driver of a car or truck supposed to do—cut out these clippings and paste them on his windshield to be consulted when he wants to determine whether or not he turns on green or red? . . . . This might sound ridiculous, but it is either that, or stand and wait for lights to change to green, so that he can make a turn without the fear of a ticket . . . . And this writer has found that they are handing out tickets "wholesale", making it appear as though the new law was merely a subterfuge in order to get more money into the city coffers.

2. Weaving in Traffic . . . . The implied intention to penalize the "weaver" without regard to circumstances is bad. This practice is in reality an "effect" and not a "cause" and should be attacked on that basis. It would largely disappear if the "center-of-the-road dawdler" (road hog) were made to keep to the right as the law prescribes . . . . The "double-parker" should also be made to desist from that practice . . . . These are the two offenders that compel the other driver, unless he is content to mope along at 10 to 15 miles per hour, to "weave" in order to attain anything like the speed of 25 miles per hour which is permitted by law . . . . Should it not be they, rather the "weaver" who should be prosecuted?

Why not enforce rigidly these two important laws of "drive-to-right" and "no double parking" and then see the "weaving" as well as innumerable accidents drop to an insignificant point?—*Truck Operator, New York, N. Y.*

●

COMMENT ON TURNING SIGNALS

● *Dear Mr. Fischer:* In the December issue of your excellent publication, we enjoyed the article entitled "*Every Turn a Good Turn*". The subject of direction signals is one that is disturbing many of our members because of the wide variance in the vehicular laws of the various states.

In this office we are trying to accumulate all the pertinent information we can find, and we note that you have certain data compiled by manufacturers which you are willing to furnish on request. Will you be good enough to come to our rescue in this matter?—*R. W. Young, Automotive Maintenance Assn. of Mich., Detroit, Mich.*

●

OIL INFORMATION GOES BIG!

● *Dear Mr. Fischer:* The survey on oil filters which your publication conducted some time ago contains a fund of valuable information. . . . The article in the August, 1936 issue of FLEET OWNER on fleet lubrication is also a very interesting and valuable one, as to my mind, it shows what can be done in reclaiming oils. . . . Information appearing in FLEET OWNER from time to time interests me very much.—*James I. Clower, Associate Prof. of Mechanical Engineering, Virginia Polytechnic Institute, Blacksburg, Va.*

●

BUS MAN SAYS "EXCELLENT"

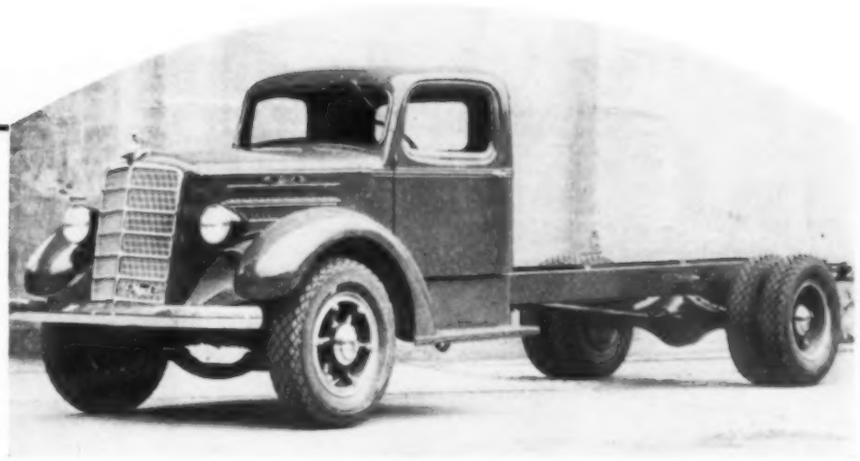
● *Dear Mr. Fischer:* May I take this opportunity to compliment you on the excellent articles published in your magazine FLEET OWNER at various times. . . . I want you to know that I enjoy each number. With many thanks.—*J. A. Moreland, Supt. of Garages, New York City Omnibus Corporation, New York, N. Y.*

●

GOVERNOR SURVEY PERTINENT

● *Dear Mr. Fischer:* I had been waiting for the question of Governors to be taken up in your Question-of-the-Month Club, and shall be very much interested in the report which is compiled.

May I tell you that I enjoy reading your publication "FLEET OWNER" and look forward to receiving it each month.—*Ed. R. Smith, Supt., Salt Lake Transportation Company, Salt Lake City, Utah.*



New Model EJ Mack *is* Rated *at* 16,000-*lbs.* Gross

MODERN styling comes in for special emphasis on the new Mack Model EJ truck and/or tractor, recently announced by Mack Trucks, Inc., New York, N. Y. This new job rates at 16,000 lbs. gross vehicle weight and is the lightest truck yet built in the regular Mack line.

Full-faired and creased fender design with high valleys between the hood and fenders; a V'd sloping chromium-plated radiator grille; extensive use of chromium plating on the windshield frame, louvre ornaments, hub caps and bumpers; and de-luxe streamlined cab with sloping windshield are among the features contributing to the pleasing modern appearance of the new model.

For its latest offering Mack has retained their characteristic new and modernistic hood louvres that were recently introduced on new Mack models. Heightening the up-to-the-minute appearance of the truck is the manner in which the angle of the hood louvres has been repeated in the sloping radiator grille and windshield.

Adding greatly to the modern appearance of this new truck is the cab. It embodies the latest features in safety, comfort, and appearance. Roof construction is all-metal. The windshield is sloping, thus reducing glare. Safety glass is standard throughout. Standard interior fittings of the cab include a dome-light, coat-hooks, and an instrument board with clocklike instruments which is indirectly-lighted. Gasoline tank capacity is 20 gallons.

The model EJ is available in four wheelbase sizes ranging from 146 to 194 inches. Three tractor wheelbases are also available, ranging from 139 to 158 inches. 8.25-20 tires are the maximum size used.

A six-cylinder engine with 3½ x 5 inch bore and stroke powers the EJ. This engine has a piston displacement of 288 cu. in. and develops 84 H.P. at governed speed of 2800 R.P.M. The crankshaft has seven bearings and cylinder blocks are of chrome nickel.

Among the features of this engine are case-hardened, fully counterbalanced crankshaft; drop-forged, case-hardened, nickel-steel timing gears with generator-ground helical teeth; Mack Permafit exhaust valve seat inserts of Niferite; Mack Stabl-ite exhaust valves of austenitic steel to prevent distortion at high temperatures; off-set turbulence type combustion chambers which are said to permit high compression without detonation; radiused cylinder bores to prevent cracked cylinders between the bore and the valve deck; and cold-circulation type thermostatic temperature control to promote rapid warming-up of the cylinders.

Drive is from a dry single-plate clutch through a five-speed, unit-with-engine transmission with direct drive in fifth as standard, an over-geared fifth being available at slight extra cost.

The final drive on this model is of the single-reduction spiral bevel type with three available ratios; 4.86, 5.83, and 6.80. At a small extra cost there is a choice of two double-reduction axles. All rear axles are full-floating and employ Hotchkiss drive. The drive-shaft has three needle-bearing universal joints, with a large self-aligning center-bearing.

The four wheel foot-brakes of this new model are hydraulic and vacuum-booster actuated. Braking area is 370 square inches for the service brakes.

The chassis frame of the model EJ is pressed carbon steel. It has a depth of 8 inches, width of ¼ inch, and a 3¼ inch flange. It is staunchly braced by three alligator-jaw type cross members and two channel-type cross members.

Springs are 44 x 2½

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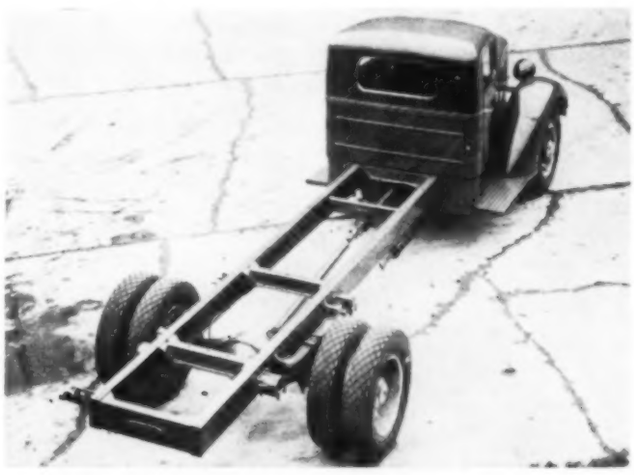
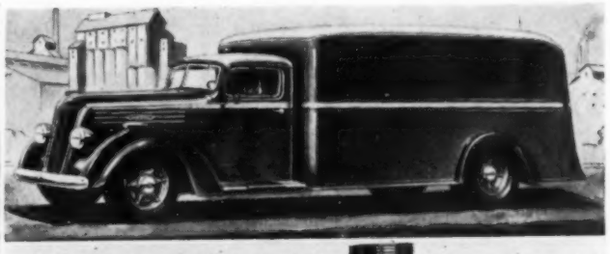
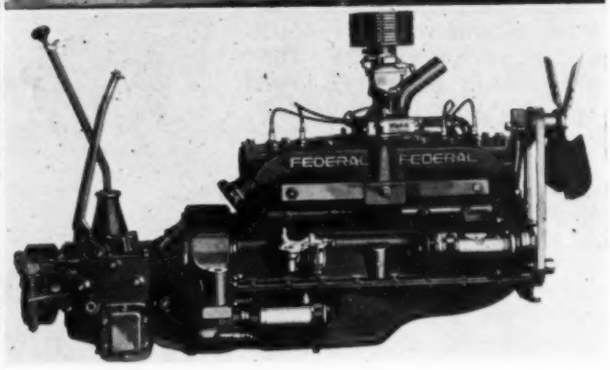


Bird's-eye view of Mack Model EJ chassis, showing box-type, alligator-jaw cross members, tapering running board and creased front fenders. Note also that the cab roof is of the integral-metal type.





FEDERAL

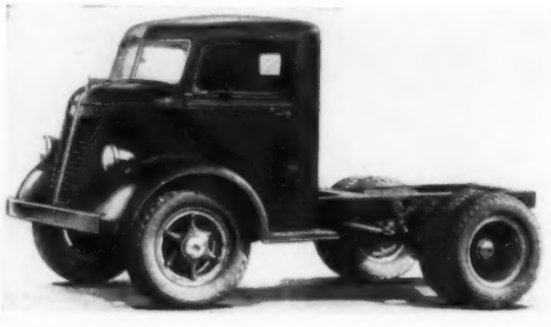
Adds Ten Oversize Models in Regular and C.O.E. Types

AUGMENTING a line of Federal trucks which has been termed by the maker as the most representative in the history of the company, six new conventional trucks and four new cab-over-engine trucks, all specifically designed for tough trucking work, were announced recently by the Federal Motor Truck Company, Detroit, Michigan.

In designing these new heavier trucks, Federal engineers have taken into account the fact that certain truck operations are so severe that a design departing from their more-or-less standard units might be provided. Dump truck service, especially, is in this class, as well as tractor-trailer operation in hilly and mountainous country or over extremely bad roads. These new Federal trucks are constructed for this extremely severe service, according to Federal factory engineers.

Six oversize models have been added to Federal's conventional line of trucks. These include the following models: Model 15H, 1½ to 3-ton rating; Model 18H, 2 to 3½-ton rating; Model 20H, 2 to 4-ton rating; Model 25H, 2½ to 4½-ton rating; Model 29H, 3 to 5-ton rating; Model C8H, 7½-ton rating.

To Federal's line of cab-over-engine trucks, four new oversize models have been added, as follows: Model 75H, 1½ to 3-ton rating; Model 80H, 2 to 4-ton rating; Model 85H, 2½ to 4½-ton rating; Model 89H, 3 to 5-ton rating.



Larger rear axles, rear springs, rear brakes, universal joints and tire equipment constitute the chief changes in the new oversize series. This heavier equipment has increased the chassis weight from 300 to 400 pounds on each chassis.

Models 15H, 18H, 20H, 25H and 29H are styled in the new conventional streamlined manner as introduced by Federal last January. These jobs have Hercules engines of L-head design, with bores of from 3-⅜ inches to 4 inches and a common stroke of 4¼ inches. Model C8H is a heavy-duty job, without benefit of much in the way of streamlining, and powered with a six-cylinder Waukesha L-head engine of 4-⅝ inches x 5-⅛ inches bore and stroke. Hydraulic brakes are standard equipment on all models, as are other typical Federal characteristics.

In the cab-over-engine line the four heavy models just announced also follow the appearance of the Federal cab-over-engine models announced last October. These jobs are also powered with the Hercules JXA, JXB, JXC and JXD series, the same as in the conventional models listed above. Hydraulic brakes are also used throughout this series of vehicles.

A full line of Federal-built cabs and standard commercial bodies is available for any of these Federal chasses. Special equipment is also available for varying types of service, it is pointed out.

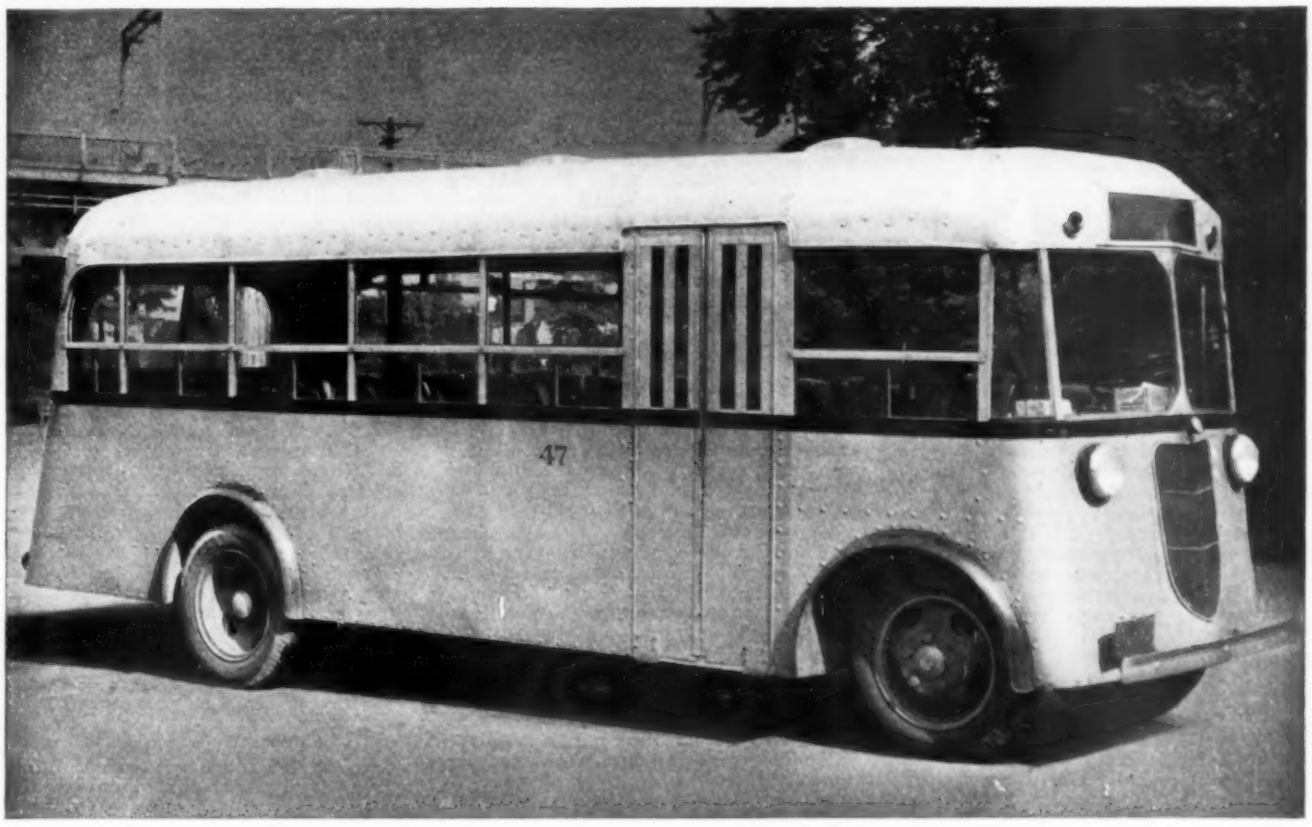
In announcing the new "H" series of trucks, engineers of the Federal Motor Truck Company state that these trucks will be manufactured, not with the idea of carrying more payload than the standard Federal models, but to carry the same payload better. Due to the heavier and stronger

(Please turn to page 65)

Built of USS COR-TEN

. . . NEW BUSES ARE 50% LIGHTER

. . . COST 40% LESS TO OPERATE



THESE 21-passenger buses recently put into service weigh only 6250 to 6400 lbs. each. They replace buses of same capacity which weighed 10,000 to 13,000 lbs.

The old equipment cost from 16¢ to 21¢ per mile to operate. The new COR-TEN built buses, operating on much faster schedules, cost only 10½¢ to 12¢ per mile—a substantial reduction for which the saving in weight by COR-TEN is largely responsible. This light-weight equipment will last longer with less upkeep, because of the greater resistance to abrasion and denting, and the much higher resistance to corrosion USS COR-TEN assures.

Why haul dead weight around in *your* equipment? It costs you money every time you move it. Every unnecessary pound in your buses and trucks adds its load to your motors . . . increases the wear on brakes, tires and running gear . . . slows up acceleration . . . makes stopping slower . . . makes fast schedules impractical. Dead weight is a perpetual drag on earnings—keep it off your payroll.

USS COR-TEN, Stainless, and other USS High Tensile Steels are leading the fight against useless dead weight. On the high speed light-weight streamliners, on freight and passenger cars, on trackless trolleys, trucks and buses, these high tensile steels are accomplishing economies in operation and maintenance far-reaching in their significance. For information regarding the use of these superior steels in bus and truck building, write to Railroad Research Bureau, United States Steel Corporation Subsidiaries, Frick Annex, Pittsburgh, Pa.

AMERICAN STEEL & WIRE COMPANY, Chicago and New York · CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh and Chicago · COLUMBIA STEEL COMPANY, San Francisco · NATIONAL TUBE COMPANY, Pittsburgh · TENNESSEE COAL, IRON & RAILROAD COMPANY, Birmingham

Columbia Steel Company, San Francisco, *Pacific Coast Distributors*

United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

LITERATURE
THAT'S NEW -- *and* FREE!

THE following numbered selections have been chosen by Editor Fischer as this month's trade literature offerings. . . . These booklets are GUARANTEED to be interesting and are offered NOT on the basis of producing inquiries for advertisers, but on THEIR OWN MERITS as handy reference data. . . . If you don't believe it, send for a few of them and prove it to yourself. Do not confuse this page with the voluminous conglomerations found in ordinary (the other fellows') magazines. . . . The post-card is for your convenience. No postage required.

332. "THE DEPENDABLE DIESEL". . . . This latest book on Diesel-power is truly a worth-while "magazine" on the subject. . . . Its 72 pages (9" x 12") are chock-full of "case-histories" and photographs that go a long way to prove the success of Diesel-power in trucks, buses, road-machinery, lighting plants, boats, etc. . . . In addition, the book is a work of art, elaborately gotten up. It's free to fleet men who mention No. 332 on the post-card.

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333. COOLING SYSTEM HANDBOOK, . . . Now that Spring is here, it's the logical time to get rid of rust, muck and other foreign material that has been accumulating in engine-blocks and radiators all Winter. . . . No. 333 on our post-card will bring you a copy of this free handbook which outlines successful, proven methods for safely cleaning cooling systems of all types. . . . As with all things on this page, this literature is a worth-while piece, and there's no obligation.

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334. WIRING MANUAL. . . . It's quite a trick to know which is the proper size of wire to use for *all* electrical installations on trucks and buses, especially since we are having to install so many auxiliary devices to comply with laws, etc. . . . Here's a handy wiring manual and wiring chart that tries to make you "an expert in a day." . . . It's new and it's free; it surely ought to interest any fleet operator who takes his electrical installations seriously. . . . No. 334 on our post-card brings a copy promptly.

•

335. CATALOG, SAMPLES. . . . Drivers' uniforms constitute one of your best, walking-talking advertisements. However, you don't have to dress your men up like drum-majors. . . . A line of neat, comfortable and *inexpensive* uniforms especially designed for summer wear, has been called to our attention. There are many styles, suitable for *any* type of business, and the low prices will surprise you. . . . We are securing a number of complete catalogs, together with samples of the actual materials available, so that you can see, price, and compare. . . . No. 335 on our post-card brings you full details, without obligation.

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336. RIVETING ALUMINUM. . . . There's more to it, it seems, than simply drilling a hole, inserting a rivet and socking it. . . . A 36-page book, entitled "*The Riveting of Aluminum and Its Alloys*" gives you the whole story, tells the proper types of rivets to use in different classes of aluminum alloys and also includes detailed instructions for doing the actual riveting. . . . In addition, it gives data on the various kinds of aluminum rivets available. . . . No. 336 brings a free copy.

337. SPARK PLUG CHART. . . . Here is a handy "heat-range" chart that should guide fleet operators in the selection of the right *type* of spark plug that exactly fits the operating conditions of each engine. . . . It also shows how to remedy either chronic fouling or pre-ignition by simply choosing a different type (hotter or colder) plug. . . . No. 337 brings a heat-range chart, free for the asking.

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338. CIGARETTE-PAPER TEST. . . . In conjunction with an interesting explanation of the advantages of using colloidal-graphited oils, Acheson has devised a very convincing "cigarette-paper test" which demonstrates certain qualities claimed for this type of lubricant. . . . Number 338 on our card brings the complete story on colloidal-graphite and also a sample of the "test." In addition, two of the latest technical bulletins on colloidal-graphite will be sent to you.

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339. WHEEL ALIGNMENT MANUAL. . . . Bear offers this complete wheel alignment manual that is just chock-full of information and specifications covering trucks and other types of vehicles. . . . A complete catalog of Bear safety equipment is also offered, giving details of their liberal partial-payment plan. . . . Number 339 brings a copy, gratis and without obligation.

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340. WELDING MANUAL. . . . If you are interested in electric-welding, here is a guide that gives the welding procedure for every essential problem in metal fabrication and repair. . . . It tells how you can weld the great variety of metals and alloys encountered in the everyday work of fleet shops. . . . Number 340 brings a free copy of this welding manual. . . . Just mark it on the post-card, if you want this.

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341. FITTING THE TRUCK TO THE JOB. . . . Here is an interesting book of 24 pages (8½ x 11) that aims to acquaint you with many important points in selecting the right *type* of vehicle for any purpose. . . . Some of the things it covers are: cab-over-engine applications; mounting fifth-wheels for trailers; problems of load-distribution; mounting bodies on chassis; and others. . . . There's not a line of advertising in this free book which you can have by merely indicating No. 341 on our post-card.

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342. TRUCK TIRE DATA BOOK. . . . Mostly all of the leading tire makers issue handbooks of this kind. The one we have in mind is Goodyear's which is a 36-page, pocket-sized handbook, the object of which is to help you select the proper *type* of tire for each job. . . . Besides listing all data pertaining to the complete line of tires made by Goodyear, the handbook gives you a wealth of rim and changeover data and also includes a table of weights and measures of various commodities. . . . It comes to you free if you mention No. 342 on our post-card.

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343. "THIS UNMATCHED SAFETY". . . . That is the title of a full-sized, 24-page booklet which explains the many causes of different types of highway accidents and does it in a graphic, interesting manner. . . . It further attempts to show how certain types of trucks are safer, with particular respect to four-wheel-drives, inter-axle differentials, safety-sealed cabs, tight exhaust lines, fire-hazards, etc. . . . No. 343 brings you a free copy of this valuable safety story. promptly and free.

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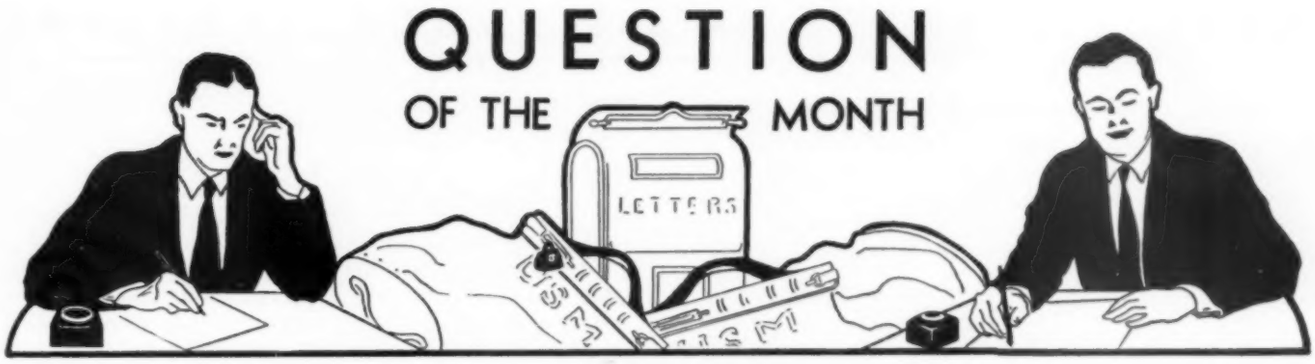
344. SMALLER DIESEL TRUCKS? . . . Yes sir, those long-awaited "small" Diesel-powered trucks are now here, in 2-ton and 2½-ton nominal ratings. . . . An interesting booklet completely illustrates and describes them and gives, in simple terms, the various features of the Diesel engines used and the performance possibilities that you can expect in normal, every-day operation. . . . Diamond-T has just issued this booklet and if you haven't seen it, Number 344 on the attached post-card will bring you a free copy promptly.

THESE ARE OFFERED ON THEIR OWN MERITS—THE POST-CARD SAVES YOUR TIME



Fleet Practice *with Reference to* Trailers

(Here's How You Can Get the Complete Picture on this Controversial Subject:)

THIS MONTH we are taking up the subject of Trailers. The questionnaire below is the only practical means that we can employ to gather the necessary data from all sections of the country at one time. It is the first step!

In order to receive the complete data which this questionnaire will bring, it is necessary that you participate in our survey, by tearing out the blank, filling in the answers to as many questions as you can (or as you care to) and mailing it back to the Editor.

In return for a few minutes of your time, you'll get a private and personal copy of the summary, giving a representative picture of the subject under discussion. Your name is never mentioned in these surveys. Thanks, a lot, for your cooperation.—H. C. F.

(Please tear out and mail to The Editor, The Fleet Owner, 90 West St., New York City)

Question No. 78—Trailers and Semi-Trailers

How many trailers do you operate? (Please indicate the number of each below)

..... Semi-Trailers ..... Pole-Trailers
..... Full-Trailers ..... Other Trailers

What makes of trailers does your fleet include? .....

Which *one* make of trailer is used mostly in your fleet? .....

What types of bodies do you use on your trailers? .....

Which *one* type of body is used mostly on your trailers? .....

Are tractor-semi-trailer units as safe to operate as straight trucks? .....

If not, please give some of the principal reasons .....

.....

Have you experienced accidents due to jack-knifing? ☐ Little; ☐ Much; ☐ None.

Are tractor-semi-trailers as flexible in traffic and close-quarters as trucks of equal capacity? .....

What type of braking system do you prefer for trailers? ☐ Air; ☐ Vacuum; ☐ Electric; Others? .....

Do your trailers require much servicing to be kept in running order? ☐ Little; ☐ Much.

What type of service is needed mostly? (Brakes, axles, etc.) .....

Do you have any difficulty with electrical connections, brake connections, etc.? ☐ Little; ☐ Much; ☐ None.

Other service difficulties, if any? .....

Does the carrying of heavier loads, made possible by trailers, cause greater maintenance expense on the tractor units, than if straight trucks were used, carrying smaller loads? .... Does this expense outweigh the trailer's advantages? ....

Which would you prefer, all things being equal? ☐ Tractor-Semi-Trailer; ☐ Six-Wheel Truck.

Remarks .....

.....

How many vehicles in your fleet? (Please indicate below)

Trucks ..... Tractors ..... Trailers ..... Pass. Cars ..... Buses ..... Miscellaneous .....

***Note:** If you cooperate with us and fill out this questionnaire, you will be entitled to a tabulated report covering all of the answers.*

Swap your Maintenance experience with other fleet operators in this easy, convenient way. We do the work. You get the benefit.

Name of Firm .....

Address .....

City and State .....

Your Name .....*Position*.....

Warehouse Buys Dodge C.O.E. Conversion

ONE of the largest furniture van bodies ever mounted on a Dodge truck chassis has recently been put into service by the Riverside Warehouse of Detroit for the hauling of furniture and other bulky loads in both city and suburban districts. This large

unit is of the Dodge cab-over-engine "conversion" type and has a wheelbase of 180 inches and a bumper-to-bumper length of 25 feet and 6 inches.

Interior of this cab-over-engine truck has a payload capacity of 1,000 cubic feet. This large interior area is made possible on the 180 inch wheelbase by the cab-over-engine arrangement which adds 135 additional cubic feet of payload space. Dimensions of the *extra* load capatity obtained by this construction are 30 inches in depth from front to rear, 84 inches high and 92 inches wide.

The cab is well insulated throughout all of the floor construction, which prevents heat of the engine from affecting the driver. The wide spacious seat in the cab can accommodate three persons, if necessary. This vehicle has a large end-gate with a double door above it, for added convenience in loading and unloading.

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Packard Man Tells Hypoid Advantages

HYPOID rear axle gears, now coming into general use in the automobile industry, made their first appearance in 1926 on Packard cars. Advantages of this type of gears are important and many, say Packard engineers. They are asserted to be quieter in operation, to have longer life and to make possible a lower car without the necessity of a tunnel or box for the propeller shaft in the floor of the rear passenger-compartment.

Teeth of the pinion, or driving gears, are larger and stronger and more pairs of them are simultaneously in contact with the teeth of the ring, or driven gear, it is explained. This reduces stresses in the gear teeth, insuring longer life. Hypoid gears are also said to possess inherent manufacturing advantages which contribute to their quietness of operation. In use in a car, they are self-generating, which insures continuous quietness.

Spiral-bevel rear axle gears, which were patented by Packard in 1914, together with the machines to make them, were universally used in automobile rear axles before Packard pioneered the hypoid gears ten years ago.

One of the main points of difference between the two types of gears is that the pinion of the hypoid gears, as used in automobiles, meshes with the ring gear at a point below the center line of the ring gear rather than at the center line, as in the spiral-bevel gears. Another important difference is that teeth of hypoid gears have more of a sliding action against each other than is true with the spiral-bevel gears.

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Exide Offers Article on "Safety"

IN answer to a demand for additional copies, The Electric Storage Battery Company announces another issue of an article on automobile safety that appeared in *Exide News*, one of the concern's house organs. In this article, the subject of safety is approached from an unsual angle, which has aroused wide-spread comment. Copies are available, free of charge, to responsible concerns wishing to distribute them to their truck drivers and other employees. Requests should be addressed to the Company's main office in Philadelphia, Pa., or to any of its brances.

The article originally appeared several months ago as part of the regular railroad edition of *Exide News*. Requests for additional copies necessitated an extra edition which soon became exhausted. In addition to individuals interested in the article, several business concerns have distributed copies to their employees. Schools, chambers of commerce, and automobile clubs throughout the country have also distributed copies.

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An Interesting Diesel Conversion

"MAKING a truck fit an engine" is what might be said of a unit recently put into service by the U. S. Truck Company of Detroit, Mich. Long advocates of Diesel engines, as users of a number of them, this firm had a Mack chassis which they wanted repowered with a Diesel. It was a "Bulldog" type, with solid tires —far from what they wanted for a particular run.

The unit was taken to the Robert Gotfredson Truck Company and when it was delivered back to the owners, hardly could they recognize it. The old "Bulldog" engine hood and radiator were gone—a new Mack radiator

and engine hood were in their place. The open cab and sheet-iron fenders were replaced with a new Mack cab and Mack fenders. Solid tires were replaced with 9.75 x 20 truck balloons. A six-cylinder Cummins Diesel was ingeniously installed in a space apparently far too small to accommodate it.

To fit the Diesel it was necessary to build an enclosure around the two back cylinders, the enclosure running into the cab. However, no useful space was taken by this metal enclosure and ample room for three is still available in the cab. Without doubt it is one of the most compact installations of a six-cylinder Cummins ever made in a 120-inch (wheelbase) chassis. Bendix-Westinghouse air-brakes are used; and also a special fuel-oil filter. Fuel-tanks are strapped to either side of the frame, just forward of the rear wheels.

Bosch Super-Powered Magnetos

UNITED American Bosch Corporation, Springfield, Mass., offers a new line of "super-powered" magnetos, in six types, to take care of practically every magneto installation.

Unlike the magneto of former years, the new magnetos have no rotating armature. Instead, the winding is rigidly mounted, sealed against moisture and carefully insulated. The only rotating parts are the steel magnet rotor and the distributor rotor gear. . . . In other words, the "armature" is stationary and the magnet revolves. The interrupter also is stationary. "Lever bounce" and hammering is eliminated, it is claimed, and contact points and other precision parts last longer than the older type. . . . The condenser, too, remains in a fixed position; relieved of centrifugal strains, it is more dependable and simpler.

In addition to the above features, the makers point out that this new magneto gives a more powerful spark at slower cranking speeds, since the new alloys of its magnets have greater magnetic strength and because the winding is larger and better insulated. Top speed can be increased appreciably, it is claimed. . . . Ventilation has been taken care of and complete sealing is featured. Servicing should seldom be necessary.

Since fewer major parts are used in this type of magneto, each of which bears lower list prices than their predecessors, where used, it is pointed out that magneto users may find it more desirable to replace old magnetos with the newer type, rather than to invest a great deal of money in repairs and parts.

These magnetos are available at new lower list prices, either with or without impulse couplings. For further details address United American Bosch Corporation, Springfield, Mass. . . . Mention of FLEET OWNER always helps.

La-Tro Elevator Tailgate

A DEVICE for increasing the earning power of commercial vehicles is the La-Tro Power Elevator Tailgate, for handling loads in or out of truck or van, without manual labor.

The tailgate and its mechanism are in effect a power elevator, operated by a take-off from the truck transmission. The elevating device is mounted in a steel frame at the rear end of the body. It can be built into the job when the new body is being constructed, or can be installed in an old body. It is designed to fit any type of body or any make of truck.

The power unit, which, incidentally, can be used for operating other types of hoists, is mounted onto the frame adjacent to the transmission. It is controlled by the operator as shown

in the picture, and operates cables leading to rams in vertical sliding grooves, which raise and lower the tailgate.

During travel, the tailgate serves as a regulation type of endgate of standard dimensions. When ready to unload, it is swung out horizontally, flush with floor of truck, and the load is moved out upon it. A touch on the control lever starts the gate lowering. Ordinarily, it moves down to street or sidewalk level within 60 seconds, or will lift a load in the same time. The tailgate can be stopped at any point either up or down. Rate of vertical motion can be regulated by increasing or decreasing the speed of the truck motor.

The unit handles iceless refrigerators, ranges, radiators, boilers, water heaters, furnaces, and other general retail items; miscellaneous freight; large castings; heavily-loaded boxes or crates; barrel fittings, and the like.

For further details address Lang Industries, Inc., 1186 Broadway, New York, N. Y. . . . Mention of FLEET OWNER always helps.

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Kit for Plating Reflectors

A COMPLETE resilvering set-up for the replating of headlight reflectors is announced by Sure-Rite Products Co., Andrews & Cedar Park Aves., Philadelphia, Pa. . . . The Sure-Plate Kit, as it is called, includes all buffing wheels, compounds, rouges and silver solution necessary to do a complete job. . . . Total time required is 15 minutes per reflector, it is claimed. . . . Further details will be sent on request. . . . Mention of FLEET OWNER helps.

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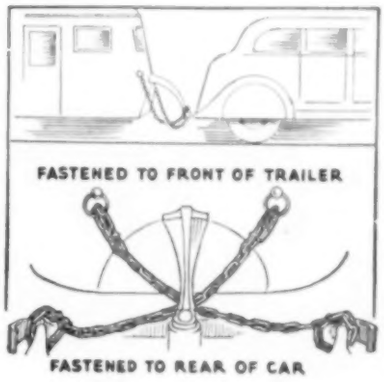
Coach-Trailer Safety-Chain

FLEET operators having coach-trailers for business or pleasure purposes will be interested to know that a special safety-chain which serves as an emergency connection between car and trailer, should the regular hitch let go, has been brought out by The McKay Company, makers of tire-chains, towing-chains and other accessories.

The Safety-chain may be used either singly or in pairs. Recommended installation is a pair, hitched diagonally, as shown in the illustration. A McKay "Klip-Lock" fastener at each end is designed to hook into any link



of the chain, so that the chain itself can be run through a ring, around a brace or bumper, or to any other point of attachment.

For further information address The McKay Company, McKay Building, Pittsburg, Pa. . . . Mention of FLEET OWNER is always appreciated.

Vacuum Testing Outfit

BRAKE service men who have occasion to service cars, trucks or trailers equipped with any make of vacuum power brakes will be interested in this vacuum testing outfit.

It is reported to be a time-saver in locating leaks in the vacuum system as well as in determining the amount of vacuum developed by the motor. Should materially less vacuum register in the system than at the engine, the part that leaks can be detected and repaired with a minimum of time.

The outfit includes an accurate vacuum gauge, a length of hose, and an assortment of fittings sufficient to make almost any connection. The supplier is Vacuum Power Equipment Co., Detroit, Michigan. . . . When writing for further details, mention of FLEET OWNER will be appreciated.

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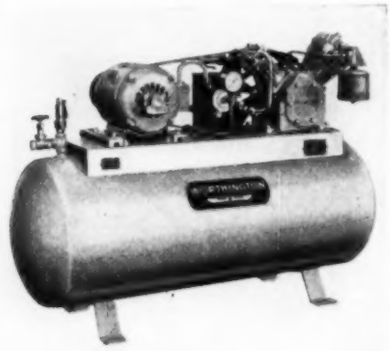
Worthington Compressors

AN improved line of air compressor units for garages and service stations is presented by Worthington Pump and Machinery Corporation, Harrison, New Jersey.

The single-stage units are available with vertical compressors. The motor sizes range from one-quarter to five horsepower, with displacements from 1.43 to 24 cubic feet per minute at a maximum pressure of 150 pounds per square inch.



The two-stage units are available with angle two-stage compressors. The motor sizes range from three-quarter to ten horsepower, with displacements from 3.9 to 45 cubic feet per minute at a maximum pressure of 200 pounds per square inch.

An air pressure switch with a valve for unloading the compressor when starting or stopping is furnished on all models. All units are equipped with Worthington Feather-Valves. The crankshaft is balanced to insure smooth operation. Full-floating wrist pins and honed cylinder walls are featured. Most models are available with either vertical or horizontal tanks to suit the particular installation.

Simplicity of design, compactness and attractive appearance have been especially considered in these models. Bulletins describing them may be had on request, without obligation. . . . When writing, you'll mention FLEET OWNER, won't you?

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Tool Catalog Data Book

A FIFTY-SIX-PAGE book known as Catalog No. 137 has been issued by the Bonney Forge and Tool Works, Allentown, Pa., which illustrates in detail and describes their

complete line of sockets, wrenches and tools.

Numerous complete sets ranging in size from 3 to 138 assorted pieces, in a wide variety of prices, are shown. A number of pages are also devoted exclusively to information which any mechanic will find useful in his daily work.

Bonney states that 112,105 copies of this book have been mailed to independent repair shops, car dealers who have service stations and fleet owners.

If a copy did not reach you, it may be obtained by writing directly to Bonney Forge and Tool Works, Allentown, Pa. . . . Mention of FLEET OWNER will speed up the service.

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Stanley Soldering Irons

A NEW line of Electric Soldering Irons is offered by Stanley Tools. Produced after two years of research, these irons are of improved design

and operate efficiently and economically on either A.C. or D.C. current, the makers state.

Correctly proportioned and well balanced, Stanley Soldering Irons have adjustable, ventilated handles. By means of a lock collar and sleeve, the handle can be adjusted to desired length and rigidly tightened. Handle is also removable.

These new Stanley Tools have compressed pure copper tips to assure effective heat conduction and to protect metal connecting surfaces from oxidation and flux corrosion. Hermetically sealed heating heads protect the "built-in" windings and solid copper cores from air, flux fumes and moisture.

There are eight different sizes of Stanley Soldering Irons, ranging from 52 Watts with a 7/16 inch tip to 435 Watts with a 1-9/16 inch tip. Each iron is equipped with a six-foot flexible heating cord with an effective cord strain relief, attached to convenient terminals. A metal resting stand is packed with each tool.

A new folder, "Expert Soldering," outlining uses for Stanley Electric Soldering Irons is available upon request. . . . For your free copy address Stanley Rule & Level Plant, New Britain, Conn. . . . Mention of FLEET OWNER will speed up the service.

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Stellite-Faced Valves

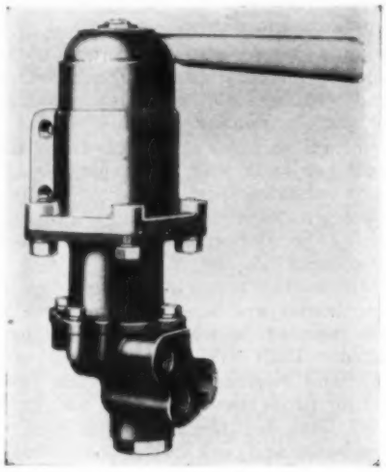
COMBINATION of a new heat and corrosion-resistant steel with hard, wear-resisting valve-seats in a "super" valve has been announced by Wilcox-Rich Corporation of Detroit, Michigan, a subsidiary of Eaton Manufacturing Company.

The new Rich Valve is made of Silcrome-X valve steel, an alloy having special metallurgical characteristics qualifying it for service at higher speeds with increased compressions and more powerful engine fuels. These valves are faced with Haynes-Stellite, a hard, wear-resisting alloy of Cobalt, Chromium, and Tungsten, said to be the hardest and most heat-resisting material ever used in valves.

Many tests have been conducted on this new valve by some of the large fleet owners, the results being fuel economy, longer valve service, less frequent repairs and replacement, and heat resistance which precludes burning out of these valves, according to the manufacturers.

Air Brake Hand-Control

A NEW hand control-valve for air brakes has been announced by the Midland Steel Products Company of Cleveland, Ohio.



A feature of this valve is that it is "fully compensating," meaning that any desired amount of air pressure (up to maximum tank pressure) can be released and maintained by application of the valve, according to the makers. In this way the speed of trucks and tractors can be checked gradually.

Also, the speed of trailer units may be checked slightly in advance of the tractor brake application, thus assuring the operator of more complete control, and minimizing "jack-knifing." The valve has been designed for use with Midland-Christensen air-brake equipment.

For further details address Midland Steel Products Company, 10609 Madison Ave., Cleveland, Ohio. . . . Mention of FLEET OWNER always helps.

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Oakite "Airefiner"

EXTENSIVE studies have indicated that bacteria control in air-conditioning systems is a protective measure that adds another valuable feature to the proven health and commercial advantages of air-conditioning.

In many types of air-conditioning systems, economy requires the re-use of the water employed for washing or scrubbing the filtered air before it is returned to the rooms that are being conditioned. It is a known fact that a considerable amount of organic matter from re-circulated air is introduced into the re-circulated wash-water, providing sufficient food material to allow bacteria to grow and increase rapidly. Due to this, algae and slime growths accumulate on surfaces directly in contact with water, and thus interfere with the efficient operation of the system. In addition, surfaces of coils used for heating and cooling air also accumulate deposits and re-infect the washed air, so that air washed with water of high bacterial content or that contacts bacterial growths on surfaces, becomes a carrier of infectious organisms detrimental to health.

Oakite Products, Inc., through its Research Division, has developed a new material known as "Oakite Airefiner" that, it is claimed, successfully solves this problem. When added to the re-circulating water used to wash or scrub air, "Oakite Airefiner" keeps the wash-water sterile and prevents the growth of slime and algae deposits in the system. This new material is said to be completely soluble, transmits no odor to water or air, and provides a stable, colorless solution that is safe and non-toxic. It is non-corrosive to metal surfaces, helps prevent water scale formation.

Successful use indicates that it is extremely economical, only very small amounts of "Oakite Airefiner" being required to destroy bacteria and to keep water sterile. An interesting booklet giving further details in connection with this new development is available on request to those interested. The booklet is free. Address correspondence to Oakite Products, Inc., 52-G Thames Street, New York, N. Y.

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Universal Ring Compressor

A PISTON ring compressing tool which can be adjusted quickly for any diameter from 2 to 5 inches has been added to the line of automotive products produced by Wilkening Manufacturing Company.

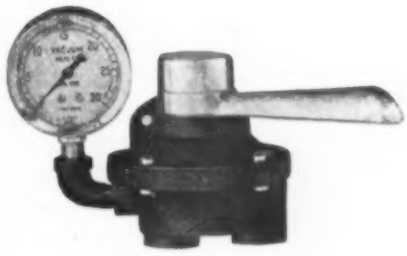
The advantage of this Wilco universal-type ring compressor, in addition to its low cost, is that only one unit and a key are needed to handle the entire automotive range of sizes.

Adjustment is made by simply turning the key handle; it is easy to keep available for quick use; it holds the rings tightly and squarely; and the edges of the band are crimped to stay outside of the cylinder.

For further details address Wilkening Manufacturing Co., 2000 S. 71st St., Philadelphia, Pa. . . . Mention of FLEET OWNER always helps.

Vacuum Control Valve

A NEW vacuum control valve for power-brake systems is announced. This valve can be used on single-line or double-line vacuum-brake hook-ups. It is claimed by the makers to permit finely-graduated braking power, from the fully-closed to the fully open position, eliminating grabbing and making it unnecessary



for the driver to "fan" the valve in order to secure the desired amount of braking force.

This valve has but seven, simple working parts; there are no adjustments necessary once it has been correctly installed, according to the manufacturers. As shown in the illustration, this valve is equipped with a gauge which shows the amount of vacuum being used, thus enabling the driver, after a little experience, to ascertain just how much vacuum he need apply for any desired brake application.

Another feature pointed out by the makers is that the use of the gauge will instantly show up any leak that may develop in the entire power-brake system, and, with a double-line system the valve will set automatically, bringing the vehicle to a stop. By using a hand-control of this kind on trailer brakes much can be done towards the elimination of "jack-knifing."

This control valve can be used with any power-brake system now on the market, it is claimed, and that it operates equally well with or without a remote control valve. . . . For further information, prices, etc., address Vacuum Valve Corporation, 2 Rector Street, New York, N. Y. . . . Mention of FLEET OWNER, when writing, always helps.

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New Road Machinery Book

PICTURES and captions describe the various phases of road-building in the new booklet recently issued by Caterpillar Tractor Company.

The illustrations tell the story of "Caterpillar" Track-type Tractors and road machinery at work in all corners of the globe in road-construction. A feature of the booklet is the tracing of the construction of a pioneer road from start to finish—from removing trees and stumps from the right-of-way, to finishing the dirt road with a Diesel tractor and blade grader.

This booklet, designated as Form 4046, may be obtained by writing Caterpillar Tractor Co., Peoria, Illinois. . . . Mention of FLEET OWNER always helps.

PACKER DESIGNS REFRIGERATED BODY (Continued from page 40)

quickly reached by the driver when standing in the aisle in the center of the body.

The smoked meats are divided in the rear shelves neatly and are handily arranged. The fresh meats are stored in the front three refrigerated compartments. The top shelf or compartment is used for cheeses and dried bolognas. On the center shelf are put the frankfurters, bolognas, and fresh sausages. The lower shelf, to which access is gained by means of a small 18" x 18" door on the outside, is the loin-box of fresh pork cuts. This is the coldest of the refrigerated compartments, being at the bottom. The most perishable and expensive cuts are kept in the "loin-box" away from other products, clean and free from contamination, odor or dirt that may be brought into the body by the driver during bad weather.

Each driver is provided with a wire-basket. This basket is kept on the wheel-box under the lower rear shelf, where it is out of the way and off the floor. When the driver enters the truck with the order from his customer, he pulls the basket forward on the wheel-pocket. He selects his articles from the rear smoked-meat shelves and the two upper fresh-meat compartments, and places them in the basket. Then he gets out of the truck, leaving the basket on the wheel-box, thereby eliminating anv chance of injury by carrying weight while leaving the truck. If he has articles to get out of the "loin-box," he opens the outside door to this compartment and places these in his basket, all this time having both hands free to work.

When all the articles needed are in the basket, (and here is an important advantage) he can remove the basket onto his hip with one hand only supporting the basket. This is possible because the elevation of the wheel-pocket on which the basket is resting is just the right height for the driver to slip it onto his hip without lifting or stooping. This enables him to carry up to 100 pounds with ease, using only one hand, allowing the other hand free to close the door and assist him in going through doors into the stores.

The Weiland (patented) ice-unit and refrigeration system is the result of ten years of successful experiment and use. The ice bunker combines several new principles. The bunker is a wedge-shaped galvanized steel tank, large enough at the top to admit a standard 50-pound block of ice. A specially-shaped extruded aluminum fin section forms an air-duct which is also Vee-shaped and fits into the tank. A 50-pound cake of ice placed in the top of the bunker will melt down into the wedge-shape of the unit, forming positive direct contact to the aluminum air-duct.

Warm air entering the duct at the top of the unit is cooled by passing down through the finned area forming the duct. The two ducts that form the vee-shape of the bunker are as nearly vertical as possible. Thus the air that is cooled in them becomes heavy and falls out of an opening provided in the lower part of the bunker. This causes a circulation of air through the ice-unit. When the ice-unit is installed in the front insulated compartment of the truck body, the air within this compartment is automatically circulated through the unit. The shelves of this fresh-meat compartment are solid and a duct is provided along the one side with opening vents at the top of the shelf through which the warm air in each shelf compartment can rise to the top of the unit. The unit is constructed so that the cool air is discharged into the lower and middle compartments.

In the actual service, this refrigeration system in the fresh-meat compartment works as follows:

Assume that the load is packed in the three compartments and is cooled to 45°. The air above the meat in each compartment is 45°, consequently there is practically no circulation of air. Now, suppose the driver opens the door of the middle compartment. A certain amount of cold air pours out of the opening and warm air rushes into the compartment. When the door is closed, the warm air rises up through the exhaust vent to the top of the ice-unit and cooler air from the ice-unit takes its place. The warm air is pulled into the unit by the downward pull of the cool air in the unit, and the circulation continues until all the air within the entire refrigerated compartments is cooled to 45° or better. In actual service, this circulation has proven to be so rapid, due to the manner in which the unit and air-ducts have been constructed, that practically no heat is absorbed by the meat.

After ten years of tests in service in the Weiland fleet the following ice consumption for an average summer week has been experienced:

At 8:00 P.M. Sunday night 80 pounds of water-ice (no salt) is put in the ice bunker to cool down the body. At 4:00 A.M. (Monday) a 50-pound block is added. The truck then runs all day, making an average of 45 stops with approximately three door-openings each stop. When it returns to the plant in the evening, 50 pounds of ice are placed in the unit. Some time before leaving the next morning, 50 pounds more are added. The unsold meat is kept on the truck at night and additional meat is added for the next day's run. The temperature will often go down to 36° by morning.

The truck goes out Tuesday all day and does not return until Tuesday evening. Since the truck does not serve on Wednesday, it remains in the garage, for washing and necessary servicing. Wednesday evening, while loading for Thursday, 80 pounds of ice are again put in the unit. Thursday and Friday morning and evening and Saturday morning 50 pounds more are added. Thus a total of only 560 pounds of ice are used per week with an average of 135 door-openings per day on Monday, Tuesday, Thursday, Friday, and Saturday, or, 560 pounds for 675 door-openings.

Of course the excellent results of our bodies are directly dependent on the manner in which they are insulated. Both the Boyertown and Weiland engineers rely on the insulating properties and light weight of Dry Zero for the sides and roof of the body, and cork in the floor. Proper attention is given to the sealing of moisture from the insulation within the walls of the body. Several of the Weiland bodies have been repaired and rebuilt after six to ten years of service. The Dry Zero and cork have always been found to be in excellent condition, having neither disintegrated nor absorbed moisture.

The size of our standard body is: length behind driver's seat, 108 inches; width inside, 60 inches; height inside, 60 inches. The front refrigerated compartment is 36 inches deep. The aisle between the front and rear compartments is 24 inches wide. The rear compartment is 48 inches deep. The cubic content of the fresh-meat compartment is 75 cubic ft. The rear smoked-meat compartment is 100 cubic ft. There are 35 cubic ft. of space in the aisle, not including the space taken up by the ice-unit. The body is mounted on a 131-inch wheelbase 1½-ton chassis with dual rear tires. Because the weight of the body has been reduced to a minimum, our average payload is three tons. The cab is built integral with the body, in order that no space is lost between the seat-back and the actual load. This assures the best load distribution by keeping the load as far forward as possible.

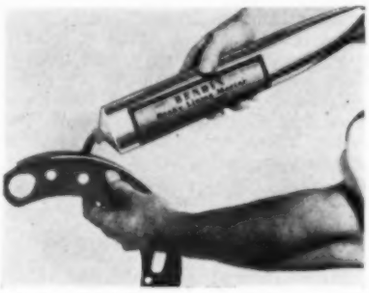
•

New Booklet on Synthetic Rubber

DUPONT has recently issued a booklet that tells, in non-technical language, many of the things you'd like to know about synthetic rubber. . . . Because of the many inquiries as to the discovery of this product and interest in its increasing uses, this information has been prepared. . . . Copies many be obtained from E. I. duPont deNemours & Co., Wilmington, Del. . . . Mention of FLEET OWNER always helps.

Bendix Brake Lining Mortar

AS a brick-layer uses mortar as a securing foundation for his bricks —so does the man using the Bendix brake lining mortar build a firm foundation that fills and hardens in any



irregularities in the brake shoe rim incurred in service or in the liner segment through fabricating processes.

This filled mortar eliminates the spongy feel to brake operation, it is claimed, by allowing a solid base for the lining segment. Exhaustive tests have demonstrated that its use retards the tendency toward brake fade-out; assists in eliminating brake friction noises, and prevents the entrance of moisture between the brake lining segments and the brake-shoes which often causes deterioration and swelling of the liner. . . . For complete information address Bendix Products Corporation, South Bend, Ind. . . . You'll mention FLEET OWNER, when writing, won't you?

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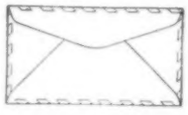
New Air-Mail Paper

OPERATORS of "national" fleets who have occasion to use a lot of inter-office air-mail correspondence will probably be interested to learn of a new postage-saving air-mail paper called "Flight Post." Weight is 27 sheets to the ounce.

This special paper has been designed to save postage on air-mail correspondence, since 12 sheets (8½ x 11) and one envelope can be sent under the half-ounce limit. The paper is thin and strong, and is quite opaque. The makers claim that even the 20th carbon copy made on this paper will be quite legible.



As a companion piece to its "Flight Post" paper, the maker announces an equally light-weight envelope, which is both thin and sturdy. Free samples of both paper and envelopes will be cheerfully sent on request. . . . Address the Lafayette Company, Department F, 50 Church St., New York, N. Y.

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Wiring Data is Offered

THE Crescent Company, Pawtucket, R. I., manufacturer of popular "Wiry Joe" Automobile Cables, has issued an attractive catalog featuring their full line. . . . This new enlarged catalog, No. 103, includes much information useful to the fleet operator and has a handy wiring chart which shows clearly the proper wire for use for each automotive requirement. . . . Copies of the new catalog are available free through jobbers or direct from the manufacturer.

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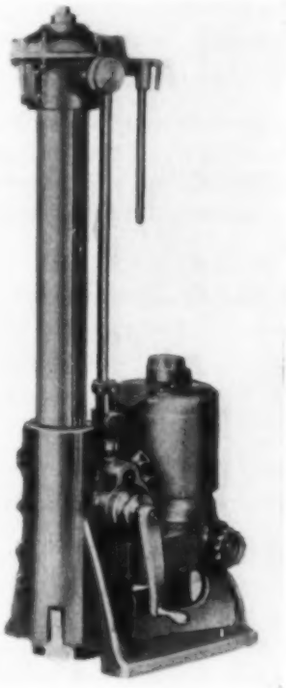
Per-Fect-O Boring Bars

SIX sizes of boring bars, for all cylinders from 2.2 to 9 inches in diameter, and from 10 to 30 inches deep, are manufactured under the



"Per-Fect-O" trade-mark by the Van Norman Machine Tool Company, Springfield, Mass. As the maker remarks, these bars will handle anything "from an Austin to a Mack."

A feature of Per-Fect-O boring bars is the four "catspaws" that not only center the bar, but guide and support the flycutter all the way down the cylinder. This prevents any chance of chatter, vibration or weaving, and precludes the need for honing or for a second cut, the makers state. Regardless of cylinder condition, one cut prepares it for fitting pistons and rings, it is claimed.

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Power Brake Equipment

TWO new vacuum power cylinders and pedal control valves for actuating brakes on trucks and trailers are announced by The Vacuum Power Equipment Company, Detroit, Mich.

One of the cylinders is for double-line (vacuum suspended) systems and the other is for single-line (air suspended) systems. Both have the same specifications—6" diameter, 6⅛" stroke, 282 lbs. pull at 20" vacuum, and 10½ lbs. in weight. They can be

installed on either cable-operated or cam-operated brakes.

One of the new valves is for single-line systems; the other for double-line systems. The advantage, as pointed out by the maker, is that they provide complete control of the brake application through the foot pedal. Another feature is that either of these valves may be converted for single or double line operation, without removing them from the vehicle, by reversing cylinder fitting and breather cap. They both mount on the pedal rod.

Complete details may be obtained from The Vacuum Power Equipment Company, 1644 W. Lafayette Blvd., Detroit, Mich. . . . Mention of FLEET OWNER always helps.

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Hall Brake Cyl. Hones

WITH hydraulic brakes standard on most cars and trucks, the Hall Hydraulic Brake Cylinder Hone Set, ilustrated here, should prove of interest to fleet men.

The Universal set contains four hones, with a range of from ¾ to 2-1/16 inches in diameter. A special passenger-car set has three hones, with a range of from ¾ to 1¾ inches.

These hones can be used with an electric drill, or in a drill-press, and are fitted with 400-grit stones, which, it is claimed, will recondition brake cylinders like new. When new parts are installed in the reconditioned cylinder, a perfect seal is promised, with no leaks past the piston under pressure.

The low prices of these sets will be found interesting to fleet operators. When writing for complete information address Hall Manufacturing Co., 1620 Woodland Ave., Toledo, Ohio. . . . If you mention FLEET OWNER when writing, they will appreciate it.

FLEET OPERATORS USE SCHRADER GAUGES

FOR ACCURATE TIRE PRESSURES

No. 6060
Service Gauge

Fleet service schedules require that tires be checked regularly, some as often as three times a day. For this type of work, service men need a tire gauge that can be used almost continually with unvarying accurary.

Schrader Tire Gauges are known for their outstanding dependability. Their minute accuracy is maintained, even in severe service, by the famous "direct-action" principle.

To be sure of maintaining correct tire pressure, even in a road emergency, equip each of your vehicles with a Schrader Gauge. Regularly used, it will pay for itself many times over.

There is a Schrader Tire Gauge for your particular requirements. Order from your regular supplier.

A. SCHRADER'S SON, BROOKLYN, N. Y.
Division of
SCOVILL MANUFACTURING COMPANY, INC.

Schrader
REG. U. S. PAT. OFF.
TIRE GAUGES

FWD'S New Oil-Well Booklet

"STIRRING Examples of Four Wheel Drive Trucks in Action" is the title of a 12-page booklet describing activities of the Halliburton Oil Well Cementing Company of Duncan, Oklahoma, recently published by the Four Wheel Drive Auto Company of Clintonville, Wis.

Being a reprint of a paper presented by C. P. Parsons, Vice President, Halliburton Oil Well Cementing Co., before an S. A. E. meeting at Dallas, Texas, last October, the booklet contains authoritative information. Mr. Parsons points out the service of his company in cementing wells—wild wells which tax the resources and patience of oil field operators.

The wide and varied service of FWD trucks in the Halliburton operations is described in the booklet. Mr. Parsons relates that the company's fleet has grown from one cementing truck in 1920, to more than 200 FWD trucks this year.

Printed attractively, and well illustrated by action photos of Halliburton operations in the field, copies of the booklet may be obtained free by writing The Four Wheel Drive Auto Company, Advertising Department, Clintonville, Wisconsin. . . . Mention of FLEET OWNER always helps.

Count "7" Tar-Remover

THE CURRAN Corporation, manufacturers of "Gunk," announce a new water-white solvent for removing old hard tar-specks from automobile truck and bus bodies

The new product is said to have amazing speed, the makers claiming that one may count up to "7" after applying "Tarlene," and no matter how fast the user may count, the tar stains will be melted.

"Tarlene" is said to be a selective solvent on tar and wax and does not affect hard paint, lacquer or enamel surfaces. . . . For further details address The Curran Corporation, Somerville, Mass. . . . Mention of FLEET OWNER always helps.

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New Ball Bearing Catalog

JUST off the press is the 1937 standard catalog on New Departure Ball Bearings. In addition to the up-to-date listing of all available types, sizes and list-prices are interesting sections on Bearing Selection, Mounting Directions, Fits and Tolerances, Equivalent Bearing Tables and Telegraphic Code for ordering.

Catalog is 146 pages, "Wire-O" bound, with tabs at each section for easy reference. Ask for Booklet "S". For your free copy, write directly to The New Departure Division General Motors Corp., Bristol, Conn. . . . Mention of FLEET OWNER always helps.

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Galvin Caterpillar Sales Chief

CATERPILLAR Tractor Company announces the appointment of E. R. (Ed) Galvin as general sales manager of the Company. . . . Mr. Galvin, who is one of the best-known men in the tractor industry and in industrial sales circles, has been with Caterpillar at Peoria, Ill., since 1928, when he left his position as general sales manager of Cleveland Tractor Company. . . . Prior to that he was for many years a member of the Du Pont organization.

•

Three New "Jenny" Distributors

THE Hypressure Jenny Division of Homestead Valve Manufacturing Company, Coraopolis, Pa., announces the appointment of the following distributors for their line of chemical vapor spray-cleaning machines: Toledo Equipment & Supply Company, Toledo, Ohio; Oil Burner Equipment Company, Tampa, Florida; Gleasner Corporation, Buffalo, New York; Merkel & Roberts, Painesville, Ohio.

•

G-E Réports Good Business

ORDERS received by the General Electric Company for the first quarter of 1937 amounted to $105,747,030, compared with $59,569,879 for the corresponding quarter of 1936, an increase of 78 per cent, President Gerard Swope announced recently. . . . This was the largest first quarter in the history of the Company. A statement of net sales billed and earnings for the first quarter accompanied the dividend of 40 cents a share, recently paid to stockholders.

Changes in Insurance Rates

LONG-haul truckmen are affected by a number of changes governing automobile liability insurance which became effective in all but six states last month according to an announcement by the National Bureau of Casualty and Surety Underwriters. The five states where the changes do not apply are: Washington, Oklahoma, Virginia, Massachusetts and Texas. (The National Bureau is the rate-making organization for 38 leading stock casualty insurance companies doing business throughout the country.)

Outstanding changes held to be of interest to long-haul truck operators are:

(a)—The establishment of three groups for rate classification purposes: (1) for those operating over 50 but not over 150 miles; (2) for those operating over 150 but not over 300 miles; (3) for those operating over 300 miles.

(b)—The establishment of a complete new schedule of basic rates and rate zones. There are now nine rate zones instead of numerous territorial rates as formerly.

(c)—The creation of a new alternative method of computing insurance rates for long-haul trucking risks known as the "gross receipts or earnings basis."

(d)—The establishment of two schedules of rates for trailers and semi-trailers used in long-haul operations. A lower rate applies where the overall length of a tractor and semi-trailer, or a truck and trailer is under 45 feet. A higher rate applies where the overall length is more than 45 feet.

The nine new rate zones are broad in scope, including, in most instances, entire states or groups of states. According to the National Bureau they have been established "on the principle that the hazard of long-haul trucking operations is more accurately and fairly measured by considering broadly the territories through which such operations are conducted."

The new gross receipts or earnings basis for computing insurance rates on long-haul trucking risks has been devised for the convenience of truck operators, the announcement continued. It is an alternative plan and provides a method by which the insurance cost of the truckman can be calculated on the basis of actual income. It provides automatic insurance coverage for all equipment whether owned or hired by the insured, and recognizes periods during which his vehicles may stand idle.

All changes were made in connection with a complete revision of the rules section of the Automobile Casualty Insurance Manual which has just been finished by the National Bureau. Copies of the revised section of the manual were delivered to 110,000 insurance agents and other manual holders in all parts of the country.

White's "Great Lakes" Exhibit

A SPECIALLY-designed, streamlined cab-over-engine truck, a completely air-conditioned coach for commercial highway travel, and a group of fast armored scout-cars with bullet-proof bodies, tires and glass, built for the U. S. War Department, will be the features of the enlarged White Motor Company exhibit at the new 1937 Great Lakes Exhibition which opens in Cleveland on May 29th. . . . The White exhibit will occupy more than 10,000 sq. ft. and will be located in the Varied Industries Building. . . . Many other colorful and action displays are also promised by White.

Hoof Reports Good Outlook in Mexico

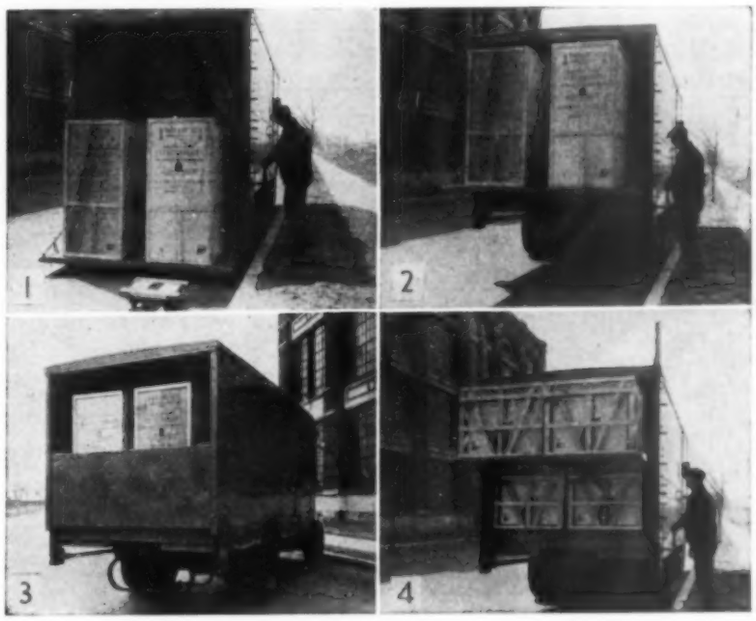
A. C. HOOF, president of Hoof Products Company, Chicago, recently spent a month's vacation in Mexico, where he found the prospects for truck transportation and the growth of the auto accessories field especially bright. . . . "The building of hard roads in Mexico is increasing," he says, "and already the beneficial effect of the great new national highway has vastly stimulated the sale of automobiles, trucks and related products." . . . With the opening of many new hard roads in Mexico, a substantial increase in the use of automotive vehicles is expected, he added.

LA-TRO ELEVATOR-TAILGATE

(Power-Operated from Transmission Take-Off)

Will QUICKLY Raise or Lower Your HEAVIEST Loads

with **SAFETY ECONOMY *and* EASE** } ***In One Minute or Less!*** *(Capacity 2,000 Lbs.)*



1. In extreme low position for loading or unloading.
2. Load raised level with floor of truck body.
3. Tailgate fastened in place—ready for the road.
4. Loading above level of truck body is also possible.

THE La-Tro Elevator-Tailgate is now manufactured on a production-basis in one UNIVERSAL model that fits all types of bodies on all makes of trucks. . . . It can be installed on your present bodies or can be built into new bodies during the course of construction. . . . Mass-production has made this time and money-saving device available at reasonable cost. . . . The power-unit is also available for other uses.

Write to-day for Literature, Prices and Application Data

LANG INDUSTRIES, INC. 1186 BROADWAY NEW YORK, N. Y.

What's the Truck Owner Thinking About?

Here are some of the "tough ones" that are probably puzzling your mind as business recovery speeds up nowadays:

1. How much time do my trucks spend waiting for a load, with idle time costing $4.00 an hour?
2. The big truck made only two trips today—what's the reason?
3. They say we need to buy another truck—do we?
4. This speeding is ruining my trucks. How can I make 'em stop it?
5. Are any of my trucks used at night?
6. This overtime—is it necessary?
7. I'd like to plan the routes better, but first I need some facts to go on. Etc.,etc.

This chart shows up all delays.

Here's a stop of 2 hours!

Here's real help for you. It's all in our Booklet—"Ten Ways of Getting More Work Out of Motor Trucks."

It's FREE for the asking. Send for it today!

THE SERVICE RECORDER COMPANY
1422 EUCLID AVE. • CLEVELAND, OHIO

The Servis Recorder
Tells Every Move Your Truck Makes

Fleet Lubrication Survey

(*Continued from page* 30)

ordering?" . . . The fact that fleet men are "choosy" about this important form of purchase is reflected in the answers which were: "Yes"—165; "No—12"; no answer—28. . . . It is only good common-sense to specify lubricants (of any kind) by *make* when ordering. Few fleets are equipped to analyze a lubricant, to find out what it will do and what it won't do. Specifying them by *make* enables them to depend on the integrity of the manufacturer (or refiner) and gives them some assurance that the product will do the work for which it is intended. . . . It is fair to remark that some of the 12 fleet men who answered "No" to this question are either farming out their work to a station that will use known lubricants; or else they are buying lubricants by specification, on a bid basis, such as is the case with large municipalities, states and government departments. . . . That takes care of that question.

The last question asked, "*Do you have trouble with grease-gun hose bursting?*" . . . The answers were: "Little"—95; "None"—87; "Much"—3; no answer—20. . . . So, therefore, we can assume that fleet operators are using *quality* equipment, and that it is rendering good service.

And that, folks, is the whole story on chassis lubrication. . . . The 205 fleet operators who participated in this questionnaire are located in 38 states, Hawaii, Puerto Rico and Canada. They are classified in more than two dozen different industries and operate an average of 144 vehicles each, or a combined total of 17,462 trucks, 1,354 tractors, 2,569 trailers, 6,091 passenger-cars, 809 buses, 517 taxicabs and 787 miscellaneous vehicles, making a grand total of 28,589 vehicles.

We will repeat that these questionnaires are conducted solely for the fleet man's benefit. The information in them is "confidential business" and only those who participate in them are really entitled to the "confidential" summaries which follow them. In these summaries you get *all the* "meat"—trade-names, brands preferred, and everything. So why not start out today and become a regular "member" of our Question-of-the Month Club? . . . The questionnaire is on page 53 of this issue, and there will be a new one every month. So much for that.

As stated previously, we have made a typewritten tabulation of this survey, for easy reference. Copies have already been furnished to those operators who participated in it. We have a few more on hand, which we will be glad to furnish, gratis, to any interested fleet operators who will send this month's questionnaire back to us, properly filled out, considering it an even exchange. However, if you fill out this month's blank you will also get a summary when it is ready.

These surveys are conducted primarily for the fleet operator's benefit, and if *more* operators would participate, it would please us greatly. All you have to do is turn to page 53, fill out the blank, and mail it in to the Editor. If you cannot answer all of the questions, just answer those you can, and leave the rest blank.

In return for your efforts, we will send you a tabulated, typewritten resumé of all the answers. Many operators have told us that they save these tabulations, filing them directly under the subject discussed, where they will be handy for future reference. This month the questionnaire is on page 53, gentlemen. . . . We'd appreciate your cooperation.

Equipment Boosts Business

(*Continued from page 32*)

clutch-pedal and solved our problem of rear-engine controls.

"G. M. T. incorporated this transmission in their units and the first order for this new type of vehicle was placed in October, 1935. Operations of this bus convinced us that it was the best vehicle developed up to date, and we were finally able to order buses in quantities, ideally suited to our operations.

"An interesting fact in this development is that while our first objective was to increase headroom, comfort and safety, we found that the rear-engine automatic transmission type of construction brought with it a considerable number of important advantages. The most outstanding of these to passengers perhaps has been the almost unbelievable improvement in riding qualities resulting from better weight distribution in conjunction with scientific spring construction. These two factors, together with the smoother starts made possible with the automatic clutch in the 'Mono-drive' transmission, vastly decreased any tendency toward skidding—particularly when starting from the curb on icy pavement.

"Locating the engine and transmission at the rear gave us quiet operation—a factor frequently commented on by passengers—while it also prevented engine fumes from bebeing drawn back into the body.

"Smoother operation is also distinctly noted by passengers. Normal operation is so smooth we can tell almost immediately when an engine is not properly tuned and are able to take care of it immediately, an important factor in the maintenance and efficient operation of mechanical units."

As to the effect of the new units on the drivers, Mr. Weintraub reported them as being unusually enthusiastic, a fact readily verified by interviews with the "Men Who Man The Coaches."

"The reason for this enthusiasm," Mr. Weintraub explains, "has been the elimination of thousands of gear shifts and declutchings occasioned by the numerous stops and starts during a day's work."

With the automatic transmission, the driver has but three controls requiring attention—the steering-wheel, gas-pedal and adjacent air-brake pedal. Formerly drivers used to hold their speed levers in second longer than they should, due to inadequate power, etc. That has been eliminated. The driver also does not have to "feel" the motor in shifting the new transmission. The new buses thus are distinctly more controllable.

"Our low floor height together with one-man operation has vastly reduced boarding and alighting accidents. Passengers may now step into the bus directly from the curb. Smoother operation and less jolting also make for increased safety. The new system of weight distribution makes steering easier—another factor to driver's satisfaction and the safety and comfort of passengers.

"Finally, the new coaches are easier to service, with the complete power plant accessible by lifting or removing a hinged rear body panel. Multiplicity of controls have been eliminated with the new transmission, further contributing to ease of servicing.

"We feel that with these new buses a long step has been taken in solving urban transportation problems. On a seating capacity basis, the new double-deck bus takes up half the street room per seated passenger as compared with other modern types of surface transportation. The Motor Coach occupies 3.7 square feet per seated passenger as against 7.4 square feet per seated passenger on the newest surface cars."

●

New Autocar Dealer in Utica, N. Y.

AUTOCAR announces the appointment of Harry Heiman, Inc., 319 Lafayette St., Utica, N. Y., as an Autocar dealer under the Buffalo branch district. . . . Territory covered by this dealer will include Oneida, Herkimer, Lewis, Madison, Chenango, Otsego and Schoharie Counties.

I.A.E. TESTS SHOW-

APPROXIMATELY

1/2 THE WEAR IN NEW ENGINES

"Dag" colloidal graphite, long used as a motor oil adjunct, has been well termed a "shock lubricant". This, because it comes into play during starting and times of stress such as lead to oil film rupture. While its function in those cases is to lower friction thus retarding seizure, there is also a wear aspect of much importance involved. That colloidal graphite reduces wear in a new engine, especially under conditions of cold starting, is seen in an engineering test conducted by The Institution of Automobile Engineers. The results of their test are officially summarized as follows:

"A sample of running-in compound containing 'Acheson's' colloidal graphite-'dag' Brand-was submitted on April 4th, 1935, for test purposes with respect to its effect on cylinder and piston ring wear in a new engine during the running-in period. Comparative tests were carried out on a plain oil and on oils containing proportions of running-in compound recommended by E. G. Acheson, Ltd. An unused cylinder barrel and unused piston ring were used in testing each lubricant and the test procedure involved repeated starts from cold, so that a certain amount of cylinder corrosion probably occurred. The results show that during the running-in period the wear with oil containing colloidal graphite was approximately half that observed with plain oil."

For and on behalf of
The R. and S. Committee of the I. A. E.
(Signed) C. G. WILLIAMS,
DIRECTOR OF RESEARCH

Write for technical folder giving greater detailed information.

Ask your oil supplier about his "dag" colloidal-graphited lubricants today

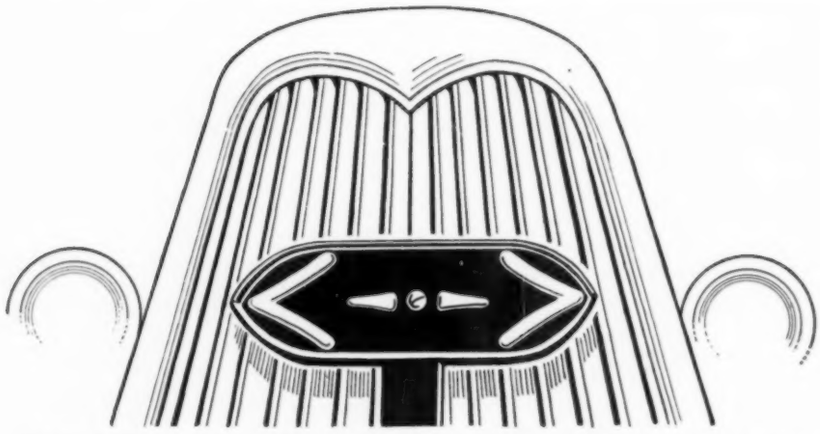
ACHESON COLLOIDS CORPORATION • PORT HURON, MICHIGAN

dag

COLLOIDAL PRODUCTS

COLLOIDAL GRAPHITE

ACHESON COLLOIDS CORP., PORT HURON, MICH.
Please send gratis, story on "dag" Colloidal Graphite and copy of "cigarette paper" test.
NAME.....
ADDRESS.....



ARROW IS THE SYMBOL OF SAFETY ON THE NATION'S HIGHWAYS!

Arrow design, construction and performance are basic reasons why the Arrow Directional Signals are approved by state highway departments and the choice of large fleet owners and truck manufacturers everywhere.

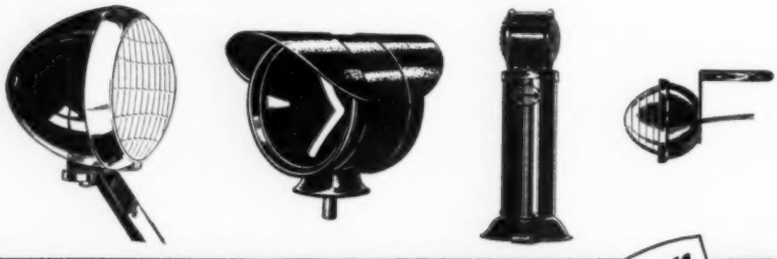
ARROW Driving Lamps

In the Arrow Driving Lamp, the bulb, reflector and lens are scientifically designed. All fringe rays are concentrated into a single, powerful, penetrating, fan-shape beam.

ARROW SIGNALS LEGALLY APPROVED

Install Arrow Directional Signals, not just to be within the law, but to add safety to "payloads." The Arrow line includes all popular approved combinations. Arrow is the choice of fleet operators and truck manufacturers everywhere.

Demand, insist upon and get Arrow dependability — it costs no more!



ARROW SAFETY DEVICE COMPANY, INC.
MEDFORD, NEW JERSEY

Ask your Jobber

Uniforms for Drivers

(*Continued from page* 34)

light blue or khaki and sometimes white. Drivers of oil trucks and general delivery men will find dark grey or brown whipcord or herringbone patterns to be practical, as these will not soil easily. And as to coal-truck drivers, we'd recommend any color, "providing it is black."

Many fleet executives who have *not* used uniforms seem to have the idea that they cost a lot of money. This is a fallacious belief—it's not a fact. An industrial uniform manufacturer who supplies many fleet operators throughout the country, tells us that the cost of cotton uniforms ranges from about $2.50 to $12.00 per man, depending of course, on the extent of elaborateness to which the operator wishes to go. This estimate is based on the premise that the uniforms will be purchased outright.

One question often asked is, "Shall we buy the uniforms, and pay for them ourselves, or shall we make the wearer pay for them?" Both plans are used in various fleets, and it depends, naturally, upon the policy of the company and their relations with their employees. Undoubtedly you know which plan will work out better in your own operation. But here is something concrete on which to base your decision:

Some firms buy all of the uniforms and sell them to the employees at wholesale cost, accepting installment payments. Other firms refund these payments after the employee has been with the firm for six months or a year. And still others permit their men to buy their own, insisting that these be of as good quality and the same color scheme and style as the standard of the company. Naturally, it will be found more economical and practical for the firm to place a group order with a reliable manufacturer or dealer who specializes in industrial uniforms. By so doing, a better price and "uniform" quality will be practically assured.

And now, a word about trade-marking on uniforms. Standardization and advertising are two of the most important factors of any business. Millions of dollars are being spent by the companies which you fleet executives represent, to keep your firm name and trade-mark before the public at all times. These companies take advantage of every means to advertise their businesses. Surely they will recognize the valuable, yet inexpensive publicity to be derived by having their name or trade-mark neatly embroidered on the uniforms of their personnel. The basic thought which this brings out is that uniforms, properly selected, will pay for themselves in increased business and good will.

Fleet operators in many lines of business are now enjoying this very thing—through uniforms. Take the taxicab companies, for instance; city and inter-city bus operators; laundries; dairies; bakeries; etc. Why should elevator operators and shop mechanics, for example, be decked out in nifty uniforms, while truck drivers, who are contacting the public all of the time, are in many cases not? It's really amazing what a uniform can do to a man, or to a service, when you stop to think about it. And today more people are thinking about it than ever before. In fact, a statistician tells us that today, 75 per cent more truck drivers are uniformed, than in 1930.

There is another angle to this story, that of uniform *rental* service, just as your barber and restaurant man is supplied with clean linens. In many large industrial centers there are firms who make a specialty of furnishing uniforms at a flat-rate of so-much-per-man. In this case the user makes no initial investment and suffers no depreciation or "wearing-out" loss, since the uniform company provides the uniform, picks it up every week (or other period) and leaves a clean, fresh uniform in its place. Usually he has three sets per man—one set is being worn, the second is kept in reserve and the third is being cleaned and renovated. All rips, tears and missing buttons are fixed-up in the renovating process

and all the buyer worries about is a nominal per-man charge for the service, without having damage or loss headaches. One company with whom we are acquainted offers this service for as little as one dollar per week, per man and tells us that in many cases this amount is deducted from the drivers' wages; in others the companies stand the expense, figuring that it is well worth the advertising value which it brings. (We will be glad to give you further details on request.—EDITOR).

We do not have to conclude this article by giving you a long list of fleet operators who have adopted standardized uniforms. You can find out for yourself, very easily, by observation in your own neck-of-the-woods. If you are still doubtful as to the soundness of the advice we have given you, just ask any fleet operator who has adopted driver-uniforms. We are quite sure that he'll tell you that it pays big dividends.

●

New Model EJ Mack

(*Continued from page* 49)

in. in front, 54 x 3 in. in the rear, and the helpers are 36 x 3 in. Spring suspension is by exclusive Mack rubber Shock Insulation. The helper-springs are standard equipment.

Steering has been made exceptionally easy, it is declared, by the use of Mack's exclusive Archimoid steering gear which has a ratio of 18 to 1.

Gross weight distribution (16,000 pounds) of approximately 30 per cent front and 70 per cent rear has been achieved through set-back front axle design, which brings the front axle as near the cab as practical in this type of conventional design.

Full details of Mack's new EJ (called their latest departure into the light truck field) may be obtained directly from Mack Trucks, Inc., Long Island City, N. Y. . . . Illustrated literature is now ready. . . . When writing for it, mention of FLEET OWNER will be appreciated. Sometimes it speeds up the service, too.

●

Federal's Oversize Models

(*Continued from page* 50

rear axle and other units with which each truck is equipped, the margin of safety is greatly increased and the danger of failure of these units is greatly lessened, it is claimed.

With the introduction of these new oversize trucks, Federal has added another distinct chapter to its policy of building trucks. These added units now make it possible for an operator whose haulage work is extra hard to select the type of truck that is more exactly fitted for his severe requirements.

Further complete details and interesting literature (if you want it) may be obtained directly from Federal Motor Truck Company, Detroit, Mich. . . . Mention of FLEET OWNER, when writing, will be greatly appreciated; sometimes it speeds up the service.

●

Change in S.A.E. Viscosity Numbers

ATTENTION is called to a change in the classification for oils designated as S.A.E. No. 40 and S.A.E. No. 50, as follows: "The maximum viscosity at 210° F. for S.A.E. No. 40 has been changed from 'less than 75' to read 'less than 80.' The minimum viscosity at 210° F. for S.A.E. No. 50 has likewise been changed from 75 to 80." This change was effective as of January 15, 1937.

New Pamphlet on Oil Filters

"PERFECT Oil Cleaning Job at Lower Cost" is the title of a new 8½ x 11 pamphlet describing the H-W and Michiana Oil Filter and the Duo-Flo filtering principle. . . . A Duo-Flo element in which the filtering material "Wastex" is replaceable, and another element which is sealed in a cartridge and replaceable as a unit, are illustrated. . . . The former is for use as a replacement for the felt filter element of H-W Filters, and the latter for use with a new model filter. . . . This bulletin, No. 337F., is offered free by Michiana Products Corporation, Michigan City, Ind. . . . Mention of FLEET OWNER always helps.

Fatal Accidents begin at 40!

HOOF GOVERNORS

Reduce Accidents by 40%

● Fleet operators and police authorities know that most fatal accidents occur at 40 miles or more per hour. Below that speed trucks can operate with reasonable safety. Above it, the accident curve rises sharply. That's why fleet operators by thousands are turning to HOOF GOVERNORS. HOOF Governors reduce accidents by 40%!

HOOF Governors are made with aluminum and stainless steel. The 10 to 50 Series are factory-calibrated and set for any desired speed, making an expensive road test on a country highway unnecessary. Once installed, they cannot be tampered with. They maintain a constant uniform speed and maximum torque because they are free from all friction . . . and have the dependable Cantilever spring, an exclusive HOOF feature. Only one working part . . . your guarantee of freedom from sticking shafts and pistons . . . the cause of many road delays.

Three Advanced Types of HOOF Governors

A.C.H. "Seal-Type" Governors . . . protected by the tamper-proof HOOF Seal.

HOOF "Key-Type" Governors . . . speed can be changed only by person having key.

HOOF "Dash-Control" Governors . . . speed can be changed from the dash only by holder of key.

Order a HOOF Governor TODAY! Mention make, model, speed and type of vehicle. Also ask for *free* 64-page *Governor Manual* and *Supplement*.

HOOF PRODUCTS COMPANY

CANTILEVER GOVERNORS

166 NORTH FRANKLIN STREET • CHICAGO, ILLINOIS

LOADED OR EMPTY THE SAME SOFT RIDE WITH CLE-AIR SHOCK ELIMINATORS

Adopted from the world-famous Aerol Aircraft Strut, Cle-Air Rear-End Shock Eliminators mark an important development in truck, bus, and commercial trailer operations. They are natural companions of Cleco Gruss Air Springs. For the first time, the progressive resistance principle of compressed air is available for both front and rear spring control. No other device offers the soft, positive resistance *regardless* of whether the truck is loaded or empty.

Moderate in price, mighty in performance, these new but proven units merit your investigation.

THE CLEVELAND PNEUMATIC TOOL CO.
Aircraft-Automotive Division
CLEVELAND, OHIO, U. S. A.

AIR SHOCK ELIMINATORS FOR TRUCKS BUSSES, AIRPLANES AND RAILROADS

Oil Terms and Tests

(*Continued from page* 38)

Matching for Color: The test of color is made by matching a standard sized sample of the oil against a series of colored glass slides. The oil sample and the device for changing the slides are placed side by side and observed through an eye-piece. Illumination is given by a standardized special type of electric lamp. The operator changes the slides until he finds the one which most closely matches the color of the oil. Each slide has a number and this is taken as a color number for the oil.

It is again a purely arbitrary standard and is really a test not so much for actual color as for depth of color. Two oils could have the same color number and yet be obviously different oils. One for instance might be distinctly yellow and the other distinctly reddish.

I have left until the last the test for gravity because this is rapidly going out of use in the case of lubricants. Oils are, of course, lighter than water. If the weight of a certain quantity of water is taken as being one unit, then the weight of equal quantities of oils will be expressed by a fraction and this, of course, is exactly how specific gravity is expressed scientifically.

This scale is, however, inconvenient for oils because the differences are very small. They would appear mostly in the second and third place of decimals so a special scale has been prepared known as the A.P.I. gravity.

The test is made by having a sample of oil in a glass cylinder at the standard temperature of 60 deg. and dropping into it a glass plummet weighted inside with mercury. The less dense the oil, the further will the instrument sink before it reaches a floating position and the depth of submersion can be read from the scale at the upper end of the glass. By this method the less dense oils have the highest numbers. Lubricating oils range mostly between about 18 and about 30.

If the viscosity and the gravity are known, we have an indication of the chemical type of crude from which the oil was made or of the process by which it was refined. Some years ago, the gravity test offered fairly direct evidence as to the crude used in making the oil. Today with many new refining processes, it has ceased to have much significance.

Of course so far as the behavior of an oil as a lubricant is concerned, its density is of absolutely no importance. It is perhaps a little difficult to grasp the idea that density and viscosity have no connection. But water (which has much less viscosity than any oil) is much denser than any oil, while mercury (which is a liquid of very low viscosity) has a density enormously greater than that of water.

(EDITOR'S NOTE: For your information—and ONLY for your information, may we tell you that Mr. Clayden, author of this article, is Research Engineer for the Sun Oil Company. The article is published through the courtesy of "Our Sun." We hope you have found it interesting. Naturally, some companies might have different ideas on the methods of testing, the value of the respective tests and other data given by Mr. Clayden. . . . We shall be glad, therefore, to hear from other lubrication engineers and perhaps we can find room for their constructive suggestions in early issues of this publication.—H. C. F.)

•

Brake Lathe Production in Full Swing

VAN NORMAN Machine Tool Company, Springfield, Mass., reports that production is now in full swing on their new assembly-line set-up for the brake drum lathe which the Company recently acquired from the L. W. Aff Machine Works, San Francisco, Calf. . . . The lathe has been thoroughly re-engineered. Exclusive features include a rotating spindle that slides horizontally, a multiplicity of feeds (six forward, six reverse) and a grinding attachment that can be universally applied to all brake drums.

New Free Book on "Safety"

MANY odd and surprising facts about America's automobile accident experience in 1936 are revealed in a new booklet entitled *"You Bet Your Life,"* recently issued by the Travelers Insurance Company, Hartford, Conn. By comparing the hazards of traffic with some of the common forms of gambling, the editors have put forth a clever argument against reckless driving and walking.

The traffic gambler, the booklet points out, is eleven times as likely to be killed or injured in an automobile accident as the holder of a sweepstakes ticket is to win even a small prize. He is 32 times as likely to be killed on the highways as the holder of a sweepstakes ticket is to collect a major prize.

The pedestrian who risks all the remaining minutes of his life to save a single minute by crossing the street in the middle of the block, the record shows, is as foolish as the man who would bet seventeen million dollars against one dollar that he could toss a booklet into the air and catch it as it falls. He probably would win, but the small gain would not be worth the tremendous risk.

The gambling note sounded in the title runs throughout the booklet, and both text and illustrations frequently refer to the nation's traffic problem as a "lottery" in which everyone, willing or not, must have a hand. "The Sky's the Limit" is the caption on one page containing a dramatic illustration of pedestrians and motorists being "lost" in a game of roulette. The subhead reads: "No pikers in this game. When you gamble in traffic by driving or walking carelessly, you bet your life!"

After analyzing reports of 36,800 fatalities and 967,840 injuries in traffic accidents last year, the company's statisticians point to these interesting and little known facts about accidents.

Nearly 94 per cent of drivers involved in fatal accidents are male and only six per cent female. It does not necessarily follow that women are safer drivers than men, they carefully point out, because adequate data on the relative exposure are lacking.

More than 97 per cent of drivers involved in fatal accidents have had one or more years' driving experience.

More than 75 per cent of all fatal accidents occur when the road is dry. More than 85 per cent of all fatal accidents occur in clear weather.

Saturday was the most dangerous day for driving in 1936, and Tuesday was the safest. In 1935, the fewest number of accidents occurred on Wednesday. More persons were killed last year between seven and eight o'clock in the evening than at any other hour, but the heaviest injury toll came between five and six o'clock in the afternoon.

About 60 per cent of the fatalities occurred during the hours of darkness, when there was only about 25 per cent of the total traffic on the road.

Nearly 80 per cent of the total vehicles involved in fatal accidents were passenger cars.

More than 93 per cent of all vehicles involved in fatal accidents were in apparently good condition when the accident occurred.

The number of Americans killed in traffic accidents during the last 15 years exceeds by a wide margin the number of Americans killed in action or died of wounds during all the wars in which the nation has ever engaged.

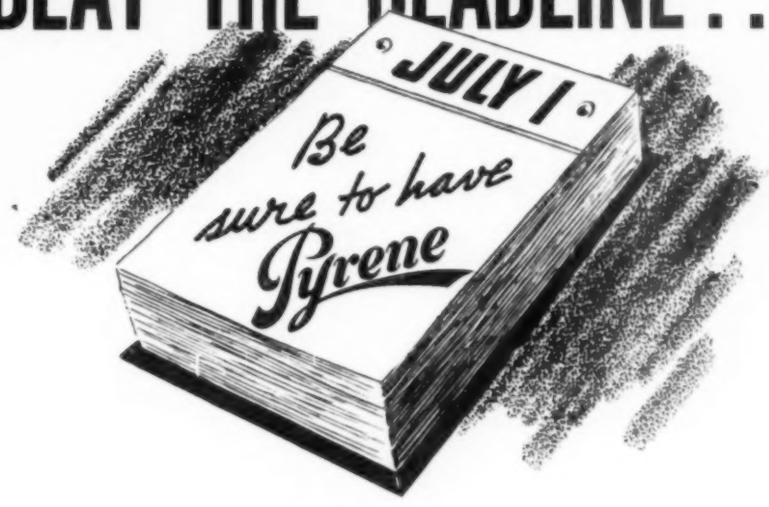
Single copies or quantities of this booklet may be obtained gratis by writing the Travelers Insurance Co., Hartford, Conn. . . . Mention of FLEET OWNER always helps.

●

Added to Lincoln Kansas City Office

LINCOLN Electric Company, Cleveland, Ohio, announces the appointment of Don McCormick as arc-welding consultant in their Kansas City, Mo. office, located at 1818 Main Street. . . . Mr. McCormick was formerly welding supervisor for the Sheffield Steel Company of Kansas City. . . . E. D. Anderson is in charge of the Lincoln Kansas City office.

BEAT THE DEADLINE . . .



THE HEAVY DUTY FIRE EXTINGUISHER

For Trucks and Buses

Pyrene is more than the legally approved fire extinguisher; it is an investment in time proven fire protection.

Structurally, it is rugged heavy-gauged brass with reinforced side panels and built-in shock absorbers. Filled with Pyrene Fire Extinguishing Liquid, which is good until used. Will not freeze to 50° below zero.

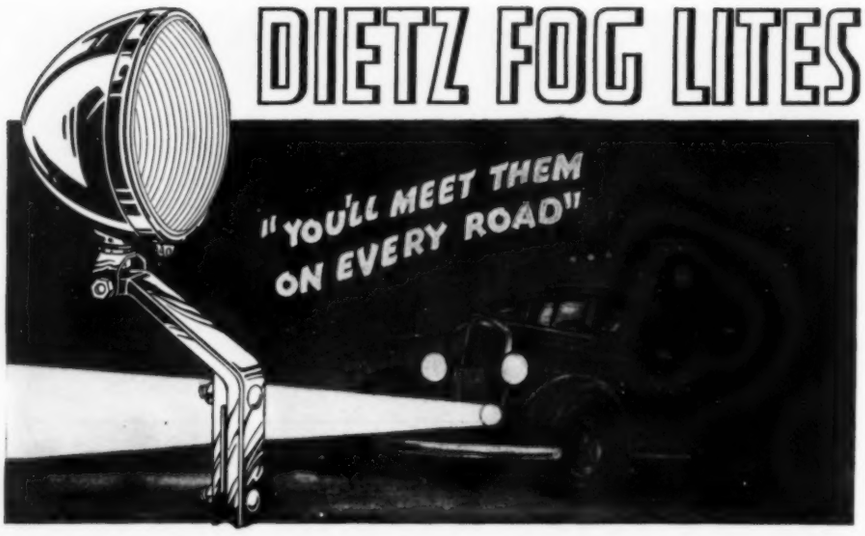
Built to stand the destructive vibration of daily duty on the road. Mounted in truck type brackets—jolt proof—rattle proof—will outlast the rig it rides with.

Bracket for mounting on dash or other convenient location in cab, at no extra cost.

Special Steering Post Bracket at slight extra cost

READY NOW . . . *At All Good Jobbers*

Pyrene Manufacturing Company
NEWARK NEW JERSEY
ATLANTA KANSAS CITY CHICAGO SAN FRANCISCO
Fire Extinguishers Tire Chains



HERE IS A LITE THAT PROTECTS YOUR DRIVER - - - - YOUR TRUCK AND ITS LOAD - - - - YOURSELF

IN view of the many "must" warning lights required on commercial vehicles at night to protect the public, why not put on one or two to protect your own interests—to reduce eye and driving strain on your drivers, helping them to take fewer chances with your property when pushing on through fog and storm over dark or unfamiliar roads.

Dietz Fog Lites are NOT a fad. They are essential equipment that should go on every truck and bus for faster, safer, more efficient operation at night. They light the edge of the road, safeguard around curves, give clearer vision through fog and rain and cost less than some other items, less important, that go on as standard equipment as a matter of course.

Ask your Supply Dealer to quote you on Dietz Fog Lites—the high grade lasting Lites, made in two finishes with suitable mountings.

DIETZ

R. E. DIETZ COMPANY, NEW YORK
PIONEER MAKERS OF VEHICLE LAMPS, FOUNDED 1840

HEAD LIGHTS • TAIL LIGHTS • MARKER LIGHTS • DITCH, FOG & SPOT LIGHTS • DIRECTION SIGNALS
TRUCK FLARES • REAR VISION MIRRORS • FLOOD LIGHTS • CATAPHOTE REFLECTORS • FIRE EXTINGUISHERS

V-N Completes New Plant Annex

VAN NORMAN Machine Tool Company, Springfield, Mass., has recently completed an addition to its plant. The new annex includes 14,000 sq. ft. of floor space in which has been installed $100,000 worth of new production machinery. . . . Demand is reported steadily on the increase for Van Norman universal milling machines and radius grinders, while sales in the companion line of automotive service equipment—including boring-bars, piston-grinders, brake-drum lathes and valve tools—are also reported on the up-curve.

New Studebaker Appointments

STUDEBAKER announces two appointments to the post of assistant sales manager, and five regional appointments, as follows: C. S. Fletcher, assistant sales manager at South Bend; R. F. Gloster, assistant sales manager in New York. . . . C. H. Monahan takes over the regional managership of the Chicago branch, with L. S. Morrin as assistant regional manager. . . . S. B. Cochrane fills the South Bend regional post vacated by Mr. Gloster. . . . Two new assistant regional managers, Paul R. Davis, and Helm Walker, have been selected for the Philadelphia region.

HELP WANTED

Truck Mechanic Wanted (Adv.)

TRUCK Mechanic, experienced on heavy-duty Macks, Continental 21R and 22R Continental engines. . . . Good opportunity for reliable man in up-to-date fleet shop. . . . State qualifications, age, salary expected, etc. . . . Location, metropolitan New York. . . . Address EDITOR, FLEET OWNER, 90 West St., New York, N. Y.

•

Automotive Machinist (Adv.)

MACHINIST, Automotive, wanted to take charge of fleet machine shop. . . . Knowledge of truck and trailer parts essential. . . . Location, metropolitan New York. . . . Please reply giving experience, salary, etc. . . . Address EDITOR, FLEET OWNER, 90 West St., New York, N. Y.

•

Fleet Service Manager (Adv.)

FLEET Service Manager wanted. . . . Capable man with proven ability in directing staff of mechanics and assuming responsibility in large fleet. . . . Previous experience with Mack or Brockway distributors required. . . . Location, metropolitan New York. . . . State age, experience, salary desired, etc. . . . Address EDITOR, FLEET OWNER, 90 West Street, New York, N. Y.

POSITIONS WANTED

Transportation Executive Available (Adv.)

GENERAL TRAFFIC MANAGER seeks executive position with fleet operator, combination of transportation lines, or truck association. . . . Have a 20-year background in retail city deliveries; wholesale truck transportation; state-wide distribution; routing and scheduling; local and long-distance hauling; garaging and maintenance; purchasing equipment and supplies; truck surveys and costs; safety programs and employee welfare. . . . Am at present in charge of a fleet covering 20 branches over three Central states. . . . Seek new connection as above. Location immaterial. Available on short notice. . . . Address Editor. FLEET OWNER, 90 West St., New York, N. Y.

•

Shop Foreman Available (Adv.)

FLEET Manager and shop foreman, seeks connection with truck or bus fleet operation. . . . Thoroughly experienced in all branches of fleet servicing. . . . Have been connected with the truck fleet industry for 20 years. . . . Fully conversant with all phases of operation, maintenance and mangement. . . . Age 39; married. . . . Will locate anywhere in the United States. . . . Address B. E. A. c/o Editor, FLEET OWNER, 90 West St., New York, N. Y.

Bus Foreman Available (Adv.)

CAPABLE Bus Garage General Foreman or Supervisor, with 16 years' experience in charge of bus maintenance on city operation in mid-west city. . . . Can furnish satisfactory references. . . . Seeks connection with responsible bus fleet. . . . Address Box KC, FLEET OWNER, 90 West Street, New York, N. Y.

•

Fleet Maintenance Man Available (Adv.)

FLEET Service Manager seeks new connection as operating manager or fleet superintendent. . . . At present employed. . . . Have had 17 years' experience in equipment operation and maintenance, setting up cost records, handling men, etc., and can guarantee to hold operating costs to a minimum figure. . . . Education adequate to satisfactorily perform a duty of this kind. . . . Good knowledge of Diesel engines. . . . Have been in present position for over 10 years and still working at it but desire to make a change. . . . Address F. C. G., c/o Editor, FLEET OWNER, 90 West St., New York, N. Y.

•

Day-Night Service for Ford Users

FLEET owners operating through northern Ohio and eastern Pennsylvania have been apprised of a new service policy recently made available. . . . Ford dealers located on principal highways in this area are providing day-and-night service. . . . Lists of dealers, with names, addresses and telephone numbers, showing where this day-and-night service may be obtained are now being distributed. . . . The 24-hour service plan was carefully worked out by Ford branch officials at Cleveland. . . . Freight haulers should be particularly interested, it is declared.

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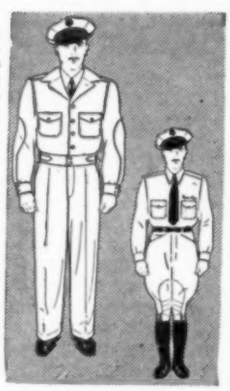
HERE COMES SUMMER!

Take Action! Get Action! On

UNIFORMS



Fill ALL your warm-weather uniform requirements . . . economically . . . speedily . . . *at one source!* That means HANOVER—the finest and most complete cotton Regulation Uniform line in the U. S. A.! *Shirts, Slacks, Breeches, Blouses, Caps, Ties*—at direct low WHOLESALE PRICES! Delivered from our tremendous stock—AT ONCE! Time's short! Write NOW! Catalog on request.

HANOVER

UNIFORM COMPANY

120 S. HANOVER ST., BALTIMORE MD.

New Prest-O-Lite Acetylene Plant

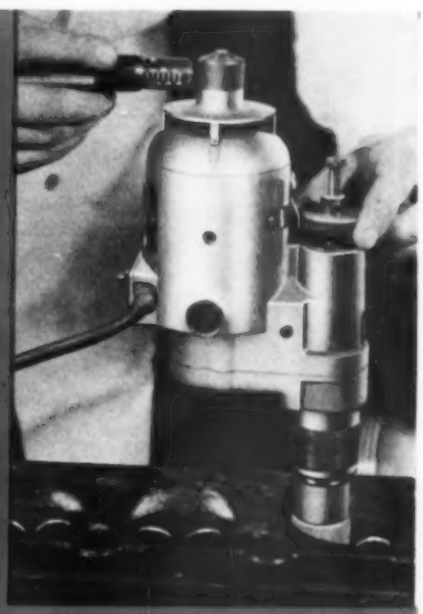
THE Linde Air Products Company, Unit of Union Carbide and Carbon Corporation, announces the opening of a new Prest-O-Lite acetylene plant at 2330 Armistead Bridge Road, Norfolk, Virginia. . . . This plant will take care of the increasing acetylene requirements in the Norfolk area. This brings the total number of Prest-O-Lite acetylene plants serving the Oxy-acetylene welding and cutting needs of industry throughout the United States to 53. . . . In addition to acetylene, a stock of calcium carbide will also be maintained at this plant. Oxygen and apparatus and supplies for welding and cutting will be available, as formerly, at the Linde oxygen plant at 2219 Colonial Avenue, Norfolk.

•

S-W Promotes Montgomery

THE Sherwin-Williams Company, Cleveland, Ohio, announces the appointment of W. J. Montgomery to the post of general manager of transportation sales. . . . Mr. Montgomery who succeeds Mr. Wood, now vice-president and general sales manager for the company, has for some years served as assistant manager of transportation sales.

There is Only **ONE** VALVE SEAT GRINDING METHOD Approved by 50 Factories and Thousands of Fleet and Service Shops... IT'S THE **HALL ECCENTRIC**



There's Only One **ECCENTRIC** VALVE SEAT GRINDER

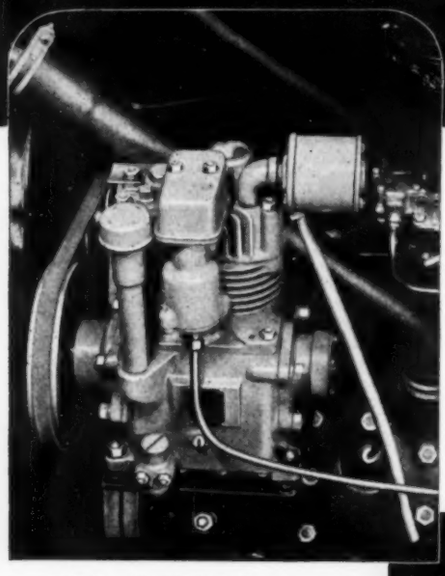
...that's because HALL was not only the first to foresee valve seat grinding as a coming service operation but, after trying and discarding all other seat grinding methods in vogue today, originated and patented the ECCENTRIC grinding principle as embodied in the thousands of HALL Grinders now in use. These HALL patents have never been successfully infringed—that's why there is only ONE ECCENTRIC Valve Seat Grinder—and it's a HALL.

ASK YOUR JOBBER

THE HALL MFG. CO.

1620 Woodland Ave., Toledo, Ohio

HERE'S A FORD AIR BRAKE
WITH PLENTY OF RESERVE POWER
IN CITY TRAFFIC YOU NEED MIDLAND'S BIG 7.3 C. F. COMPRESSOR



Midland 7.3 Cu. Ft. Compressor, mounted on a 1937 Ford V-8.

• With Midland (Christensen) air brakes on your Ford tractors or trucks, you have ample reserve air pressure. In city traffic, on hilly roads—wherever brakes are used most, operators can depend on Midland's extra margin of safety. The Midland compensating foot control valve releases any amount of air pressure desired—you can check speed gradually or come to a quick-acting emergency stop.

MIDLAND FORD AIR BRAKES AS LOW AS
$139.00

COMPLETE KITS

All necessary parts, plus complete instructions, are contained in handy packaged kits—for 1937 Fords. Also vacuum kits for all popular makes. See any of Midland's nation-wide network of distributors or write direct.

DISTRIBUTORS WANTED

Write us about our distributor franchise. Your territory may be available.

THE MIDLAND STEEL PRODUCTS CO.
10609 MADISON AVENUE • CLEVELAND, OHIO

MIDLAND POWER BRAKE EQUIPMENT
MIDLAND (CHRISTENSEN) Power Brakes
SAFETY POWER

Specializes in "Spotting"

A MAJOR contribution in highway safety has been made to the trucking industry by a Buffalo, N. Y., man who arrived in that city three years ago with empty pockets and in need of a job.

As a result of this man's originality in making a place for himself, several large trucking companies today boast improved safety records and a practice has been started which is certain to be of inestimable value to the industry.

This man is Tim Donahue, a "spotter" at the Buffalo terminal of a large nationally known freight forwarding company. He "spots" or switches trailers which arrive loaded with merchandise from points far and near.

Truck drivers formerly "spotted" their trailers themselves. Now that Donahue has taken over this task, the drivers have ample time for sleep and rest. Since many of these units come from points hundreds of miles distant, the matter of sleep and rest for drivers is important.

Donahue started out in a "fourth hand" tractor. He is now the proud owner of a new 1937 Ford V-8 which he maneuvers about the terminal with the utmost dexterity.

Freight forwarding companies, it may be explained, do business on the differential in carload and less-than-carload rates charged by the railroads. Less-than-carload shipments are picked up by trucks over wide areas and assembled into carload lots at concentration stations maintained at strategic points throughout the country.

Carload shipments received by rail at these points are likewise broken down into less-than-carload lots and distributed by truck. Hence the prominence of trucks in the freight forwarding business. Many leading trucking companies derive large revenues from hauling less-than-carload freight.

Credited with being the first "spotter" in the company for which he works, Donahue has produced results which speak for themselves. Trucking companies serving the Buffalo terminal noted that their drivers were having fewer accidents on the road following the period of rest in Buffalo.

These companies estimate that the reduction in accidents on the road has been at least 60 percent. Similar jobs have been created in other terminals with like results and further expansion of the service is anticipated. Donahue himself appears to enjoy the long hours which result from his strict attention to his job, for he feels that his work is having far-reaching effects.

•

General Motors Forms Diesel Division

GENERAL Motors Corporation announces the formation of a new Division, to be known as "Diesel Engine Division of General Motors Corporation." . . . The new Division will manufacture a line of Winton Diesel engines, beginning with a 20 h.p. single-cylinder unit, up to a 160 h.p. six-cylinder unit. . . . Single-cylinder units are designed for stationary use, while the multi-cylinder units are all applicable to marine, stationary and commercial vehicle use. . . . The manufacture of Diesel engine fuel-injectors which has been carried on in the G. M. Research Laboratories for the past seven years, will be moved to the new plant, to be erected in Detroit.

•

Linde Completes New Oxygen Plant

THE LINDE Air Products Company, Unit of Union Carbide & Carbon Corporation, announces the opening of a new Linde oxygen plant on Powhattan Ave., Essington, Pa., near Philadelphia. . . . This plant will take care of the increasing oxygen requirements in that area; it brings the total number of Linde oxygen plants serving the oxy-acetylene welding and cutting needs of industry throughout the United States to seventy. . . . The oxygen requirements within the city limits of Philadelphia will be served, as formerly, by the Linde plant at 18th & Cambria Sts., and the additional facilities will take care of the growing needs of the surrounding area.

Safe Drivers Get Awards

SEVEN drivers, all employed by Lamper's Inc., coal company, and all residents of Lynn, Mass., were officially recognized as careful operators by the American Policyholders' Insurance Co., of Boston, at a meeting held in the company's building, 496 Broad Street, Lynn, Mass., recently.

Safe driving certificates were awarded on behalf of the insurance company by Patrick F. Regan of the Lamper management to the following drivers: John Burke, Charles Sharkey, William Davis, Patrick Connor, John Sharkey, Michael Sammarco and Henry Tortolini, all of whom drove without an accident during 1936. Mr. Regan estimates that the company drivers average 20,000 miles a year each.

Howard L. Cates, safety engineer representing the insurance company, commended the drivers, and reviewed safe practice rules. He particularly stressed care in backing up and at intersections.

•

Terraplane Station Wagon Added

HUDSON Motor Car Company announces a station wagon as the newest addition to the Terraplane line of commercial cars. . . . It will carry eight passengers and provide room for luggage. Two of its three seats can be removed when it is to be used for truck duty. . . . Capacity is ¾-ton. It is a four-door model, on 117-inch wheelbase.

•

Rex-Watson Announces Welded Buses

REX-WATSON Corporation, Canastota, N. Y., builders of buses and commercial bodies, announce a line of all-metal, all-welded buses with steel framing incorporating "Inter-tied Duro Construction," for which patent application has been made. . . . The new models will comprise transit-type, school buses, city service models and interstate models. . . . The introduction of this line involves considerable expansion at the Rex-Watson plant, which has been rearranged throughout, to provide for greater output.

•

Thompson Acquires Jadson

THOMPSON Products, Inc., Cleveland, Ohio, announces that they have acquired the assets and business of the Jadson Motor Products Co., Bell, Calif. . . . This move gives Thompson Products the advantages of complete manufacturing facilities on the Pacific Coast and is expected to improve their service to replacement and original equipment customers in the West. . . . The Jadson Company will continue manufacturing and sales activities under its own name, and the basic policies followed by both companies will also be continued. . . . Active management is unchanged; C. V. Dachetler is acting manager; A. E. Robb is vice-president in charge of sales.

Lincoln Adds to Philadelphia Force

LINCOLN Electric Company, Cleveland, Ohio, announces the appointment of two to their Philadelphia office sales staff. . . . The new appointments include William Sivyer and B. B. Ross. . . . The Philadelphia office, located at 401 N. Broad St., is under the management of George R. Johnson.

•

Abeles Added to Easton Sales Force

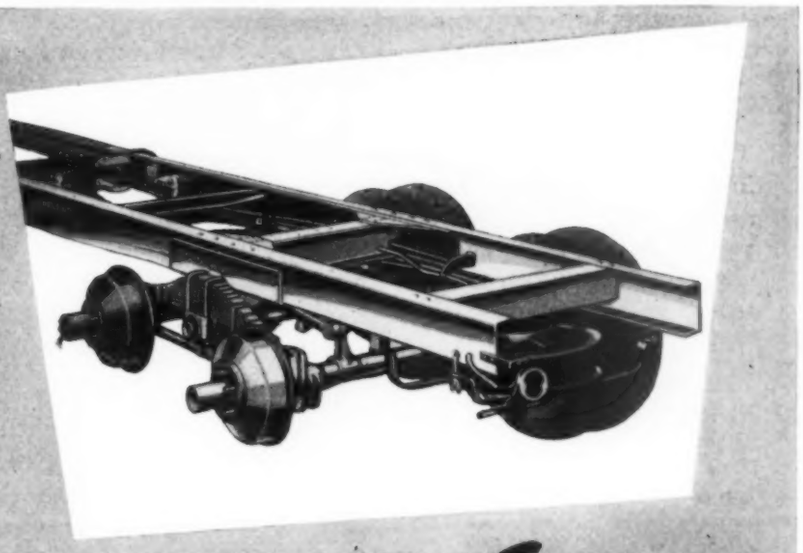
EASTON Car & Construction Company, Easton, Pa., announces the appointment of Charles Abeles to its sales organization. He will work out of the New York City office of the Company. . . . Mr. Abeles was formerly with the Koppel Industrial Car & Equipment Company, as assistant sales manager.

•

Grease Mfrs. Assn. Changes Name

NATIONAL Association of Lubricating Grease Manufacturers has changed its name recently to "National Lubricating Grease Institute." . . . One of the major objectives of the association in 1937 is to re-educate automobile owners and fleet operators regarding the importance of proper and regular lubrication. . . . Headquarters are at Keith Building, Cleveland, Ohio, and D. S. Hunter is executive secretary.

Built to be **OLD TIMERS**



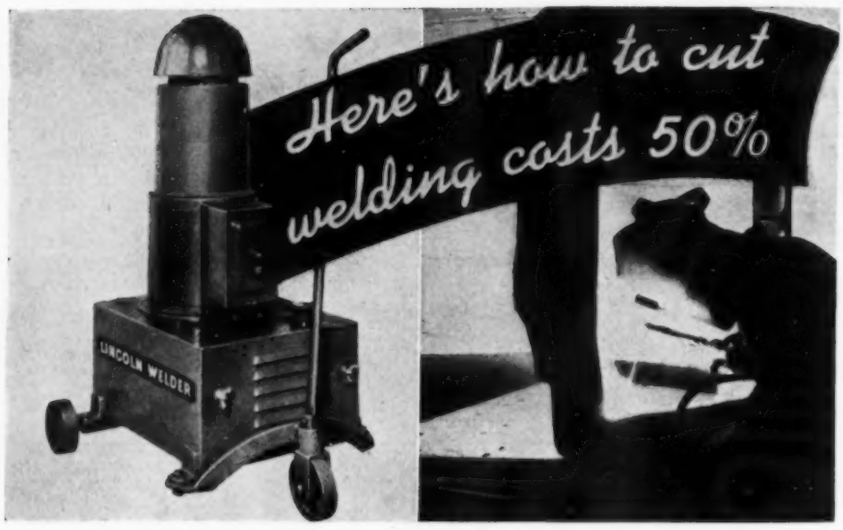
TIMKEN *6 wheel*

CONVERSION UNITS

The kind of sensibly engineered equipment that will be "good as new" after many thousands of miles of low-cost trouble-free usefulness.

Smart hauling—double the payload, with practically no increase in operating costs.

TIMKEN AXLES — THE TIMKEN-DETROIT AXLE COMPANY
Detroit, Michigan



ELECTRIC power for welding with a Lincoln Arc Welder costs as little as 5c per hour. You can weld 2 to 3 times faster than by any other welding process. Many fleet repair shops are actually saving from 50% to 75% on their welding costs by the use of a Lincoln Arc Welder.

The Lincoln "Junior" Arc Welder is especially designed for use in fleet repair shops. It is fast, easy to operate and it is as reliable as your other electric equipment or your electric lights. With it you can weld steel, sheet metal, cast iron, aluminum or alloys—anything from sheets of fender thickness to engine blocks or truck frames.

The price of these machines is as low as $200.00. They are Lincoln quality throughout—convenient terms can be arranged. Write today for details.

THE LINCOLN ELECTRIC COMPANY

Largest Manufacturers of Arc Welding Equipment in the World

THE LINCOLN ELECTRIC CO.
Dept. WW-388 Cleveland, Ohio.

Send details about the SA-75, SA-100 and SA-150.

Name..... Position.....

Company.....

Address.....

City..... State.....

Studebaker Reaches All-Time High

TRUCK and commercial car shipments of The Studebaker Corporation reached an all-time high during March, with a total of 1,386 units, according to a statement released by Geo. D. Keller, vice-president in charge of sales. . . . This figure tops by 335 units the previous record established in February, when 1,251 units were shipped.

•

New Ethyl Gasoline Plant Going Up

ETHYL Gasoline Corporation announces that a new plant is now under construction at North Baton Rouge, La., as the first step in the decentralization of plants manufacturing ingredients for leaded gasoline. . . . The plant, which is being built by E. I. duPont deNemours & Co., is expected to open in July, employing an operating personnel of 150 men.

•

"ARMCO" Opens New Sales Office

AMERICAN Rolling Mill Company of Middletown, Ohio, has recently opened a new district sales office in Indianapolis, Ind. It is located in the Circle Tower. . . . Austin Edwards, for many years associated with the middletown sales district, has been named manager of the new Indianapolis district. His territory will embrace a large section of Indiana.

Autocar Reports 1936 Sales Increase

SALES of The Autocar Company for 1936 were $11,687,930 as compared with $7,965,822 for the previous year —an increase of 47 per cent. . . . Net profit for the year was $163,695. The previous year showed a loss of $164,-812. . . . Orders for January were the largest for any single month in the Company's history, with February exceeding that, according to R. P. Page, Jr., president.

•

Heil Announces Plant Expansion

THE HEIL Company, Milwaukee, Wis., announces an extensive plant expansion program. Ground has been broken for the construction of an addition to the factory which will add 75,000 square feet of floor space to the present 400,000 square feet now occupied. . . . This expansion was necessitated by increased business in all departments, especially in the hoist and body division.

•

Truck Equipment Appoints Branch Mgr.

JOHN P. BERTRAM has been appointed manager of the New York City factory branch of Truck Equipment Company, located at 45-36 Thirty-Seventh St., Long Island City, N. Y. . . . Mr. Bertram has been in the automotive industry, specializing on trucks, for the past 25 years and is well known in the metropolitan area, Long Island, Connecticut and New York State. . . . Truck Equipment Company produces Truxmore Third Axles, Gravity Springs and Teco Dump Bodies.

•

Curran Corporation Promotes Mitchell

W. H. MITCHELL has recently been promoted to assistant sales manager, automotive division sales, of The Curran Corporation, Somerville, Mass. . . . Mr. Mitchell has traveled throughout the country for the past five years and has acquired a broad experience among automotive jobbers and fleet operators in demonstrating the properties of "Gunk" hydro-degreasing solvent cleaner.

•

Welding Consultant for Boston Office

LINCOLN Electric Company announces the appointment of John S. Humble as arc-welding consultant for its Boston, Mass. office located at 10 High Street. . . . Mr. Humble has had considerable experience in the practical application of electric welding and will be available to arc-welding users in the Boston territory for consultation on any questions or problems on welding. . . . J. E. Raney is in charge of the Boston office.

•

Turner Manages Federal Trailer Division

FEDERAL Motor Truck Company announces the appointment of J. J. Turner as sales manager of their trailer division. . . . Mr. Turner has been closely associated with the trailer industry since its beginning, both from a retail and wholesale standpoint.

5,000,000 Miles—No Accidents

(*Continued from page* 21)

In a recent advertisement appearing in connection with a safety campaign of one Fort Wayne newspaper, the telephone company acknowledged Sergeant Dunifon's letter and pointed out that cars and trucks of the company were safely driven 442,829 miles during 1935. The company also pledged its continued cooperation in the interest of safety for all.

Since the inauguration of the safety committee, company automotive units have been driven approximately 5,000,000 miles without serious accident.. Obviously, employees driving company cars have given the safety committee of the company splendid cooperation. They are active participants in an unremitting campaign to make their lives and those of others safe.

●

Another Safe Driver is Rewarded

WATSON S. CLARK, safety engineer, recently gave a talk on highway accident prevention at a meeting of truck drivers employed by Daniel E. McCarthy at 32 Auburn Street, Lawrence, Mass.

The meeting, at which Mr. McCarthy presided, was featured by the presentation of an Award of Merit Card to Raymond Hamilton, whose driving record during 1936 was free from accidents.

The award was made by Mr. Clark on behalf of the American Policyholders' Insurance Company, which encourages safe driving through a program of cooperation with its policyholders.

Retailers Voice Fear of Trucking Monopoly

THE nation's retailers are viewing current developments in the field of transportation with apprehension, fearing a reestablishment of the transportation monopoly which existed before advent of the motor vehicle.

This is indicated by L. E. Muntwyler, chairman of the Traffic Group of the National Retail Dry Goods Association and general traffic manager for Montgomery, Ward & Company.

"Many industries are interested in what is going on in the field of motor transportation," Mr. Muntwyler stated recently in an address bearing on this point, "but none is more interested than the retailer.

"The American retailer today is the largest user of common carrier motor transportation service and as such cannot help but view with some concern the speed with which the rail carriers are acquiring ownership and control of an ever increasing number of independent motor carriers. There are many who view the present trend as a sure indication that unless something is done about it, we are fast heading toward a renewed transportation monopoly.

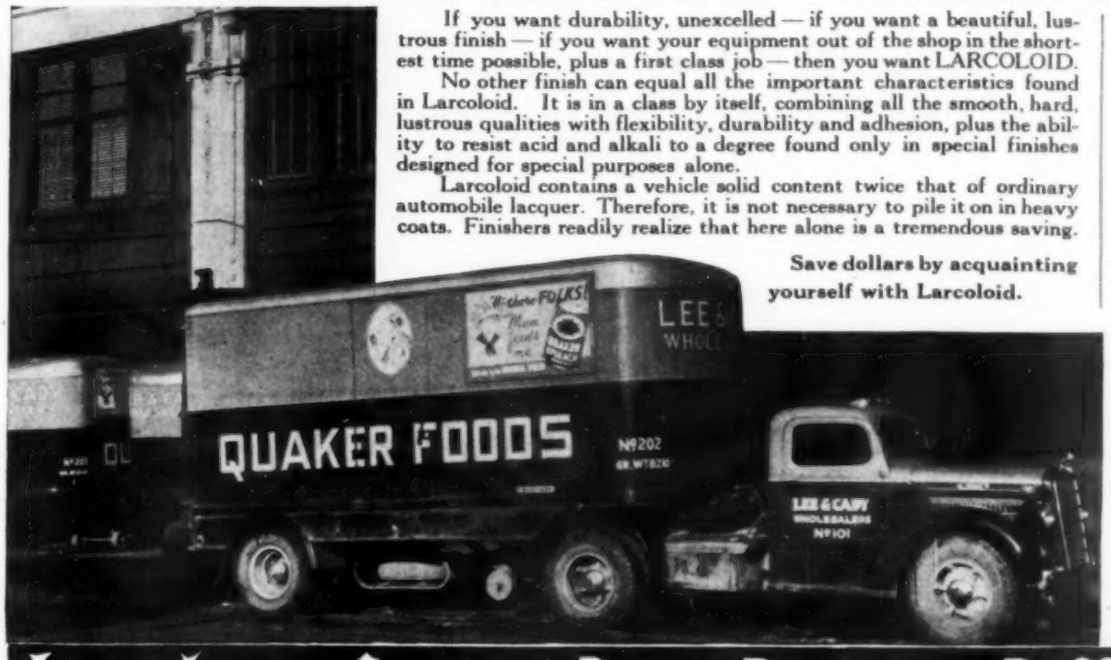
"I am not attempting here to tell you that control and ownership of motor transportation by rail carriers is being made with the sole purpose of depriving the shipper of real competitive agencies but it would be ridiculous to suppose for one moment that any one would compete with himself to the same extent that he would compete with an active competitive agency. On this basis we are amply justified in viewing with fear the continued reduction in the ranks of independent motor carrier operators."

SPRAY

Larcoloid!

BRUSH

THE PERFECT 1-HOUR-DRY ENAMEL WITH AMAZING DURABILITY



If you want durability, unexcelled — if you want a beautiful, lustrous finish — if you want your equipment out of the shop in the shortest time possible, plus a first class job — then you want LARCOLOID.

No other finish can equal all the important characteristics found in Larcoloid. It is in a class by itself, combining all the smooth, hard, lustrous qualities with flexibility, durability and adhesion, plus the ability to resist acid and alkali to a degree found only in special finishes designed for special purposes alone.

Larcoloid contains a vehicle solid content twice that of ordinary automobile lacquer. Therefore, it is not necessary to pile it on in heavy coats. Finishers readily realize that here alone is a tremendous saving.

Save dollars by acquainting yourself with Larcoloid.

Larcoloid Leads

1. Acid and alkali resisting.
2. Out of tack in 30 minutes.
3. Dries hard in one hour.
4. Has adhesion second to none.
5. More durable than lacquer.
6. Easily sprayed or brushed.
7. Leaves no brush marks.
8. Safe! Contains no gun cotton.
9. Has high insulating quality.
10. 37 colors and black and white.
11. Applied on any clean surface.
12. No trick thinner needed.
13. Not affected by alcohol.
14. Clear Larcoloid will not print.

Larkin Co Inc. Paint Division, Buffalo, N.Y.

FOR THE FLEET OWNER

New Exclusive Devices For Fire Protection

THE MODEL "A" SUPER FYR-FYTER

A fool proof, corrosive proof, Vaporizing Liquid (carbon tetrachloride base), Anti-freeze Fire Extinguisher.

(1) Vital parts can easily be removed and cleaned, adjusted or replaced by any layman. Saves expense and time—gives you 100% efficient use of your equipment. All vital parts made of Monel Metal, the non-corrosive metal.

(2) Air pump pressure delivers a steady and continuous stream of fire-killing fluid direct on fire.

(3) Anti-freeze, will stand a temperature down to 52 degrees below zero without freezing.

(4) Can be furnished with special clamp brackets for mounting on Trucks, Buses, Trailers and Autos.

Built in 1-quart and 1½-quart sizes. All finishes. Approved.

THE NEW "CAPTAIN"

1-Gallon Size Vaporizing Liquid (CTC Base)

A new 1-gallon size Vaporizing Liquid Type with duplex pump, peep sight gauge for inspecting quantity of liquid in container.

Removable pump assembly and removable shut off valves, new automatic handle lock. Hermetically sealed—no loss of liquid by evaporation.

THE "INSTANT"

(Loaded Stream) Anti-Freeze Extinguisher 1¾ and 2½-Gallon Sizes

The "Karbaloy" liquid used in the "INSTANT" is a patented product produced only by the Fyr-Fyter Company.

(1) Underwriters' Classification "A-1", "B-2". For use on general fires as well as incipient fires in flammable liquids.

(2) Extinguishes general fires in about 1/3 the time required for other types.

(3) "Karbaloy" used in the "INSTANT" fire-proofs burning materials which retards rekindling of fire.

(4) Will operate efficiently at temperatures down to 40 degrees below zero F. Liquid expelled by CO_2 Gas Cartridge.

(5) Only annual inspection required by Underwriters which makes this type very economical to maintain.

Thousands now in use by America's largest Truck and Bus Companies, Industrial Concerns, Oil Companies, etc.

Write for catalog or other information concerning Fire Protection Devices. Address

THE FYR-FYTER CO.

109-17 Fyr-Fyter Bldg. Dayton, Ohio

Let's Wire for Safety and Economy

(*Continued from page* 24)

have been caused by corroded or loose-fitting surfaces somewhere in the often neglected or taken-for-granted ground return.

The horn or horn relay, if originally in the same circuit as the headlight fuse, might be changed over to the secondary circuit through the medium of the bus-bar. The idea being to keep the headlight circuit as free as possible from failure. The same thing would of course apply to any other accessories that may have been thoughtfully included in the "party" line.

If further protection is desired, low-capacity fuses can be included in the tail-light and stop-light wires and one of the greatest capacity that will afford circuit protection should be used in the original fuse block. A good circuit-breaker of the vibrating type may be preferred to a fuse in the headlight circuit as a momentary short or overload will merely give audible warning of trouble instead of permanently breaking the circuit. Where such devices are used, attention should be given occasionally to the contact points.

If fog or auxiliary lights are used, they might be included in a circuit run directly from the battery, whereby if not already in use, they could be switched on in the event of the regular headlights failing. Or a combination of switches including an automatic device in the headlight circuit would enable them to be used independently or as an emergency unit. The weakness in this system is that in cases where the headlights fail from overloading or battery failure, the others would suffer the same fate.

The only sure-fire protection against being left in the dark is to use a separate battery, wiring and lights, not connected to the generator or main electrical system, for this emergency circuit and in many cases this may be justified. The circuit should include a cut-in relay in the main headlight circuit and at least one tail-and-stop light in addition to a driving light or headlights; and needless to say it should be inspected and tested frequently enough to insure its being ready if needed.

Battery cables should be protected from possible damage or shorts due to chafing, bending, etc., and the battery should be properly covered to guard against accidental contact. All exposed terminals, such as those on starter, generator, fuse-blocks, etc., should be fitted with caps or covers for the same reason.

These precautions, if followed throughout, will make the electrical system safe and reliable and eliminate much annoying and costly "trouble shooting" in addition to furnishing much in the way of accident-prevention and elimination of road delays from light trouble, "tickets" and arrests.

●

Hard-Facing Cuts Fleet Costs

(*Continued from page* 43)

when the valves as well as the seats of a motor are hard-faced. However, as mentioned above, ordinary steel valves working on a non-ferrous alloy seat will sometimes last approximately 60,000 to 80,000 miles between grindings. And that certainly is plenty of mileage.

Many test runs have shown that more than 100,000 miles is not an abnormally high mileage to be expected from motors equipped with both hard-faced inserts and valves. Several shops have also hard-faced the valve necks, tappets and the ends of valve-stems. Although these applications of hard-facing require relatively little expenditure of time and money, the savings in main-

tenance expenses can be very considerable.

An innumerable number of other wearing parts which have caused frequent replacement expenses can be hard-faced. Some of these will come to mind in thinking over past experiences in the shop. Service mechanics often hard-face many of their tools. Carbon-scrapers, putty knives, lathe and grinder centers and grinder rests, as well as other parts of machines and hand tools, last many times longer when hard-faced. Hard-facing is a universal maintenance process and should be kept in mind whenever parts are wearing too rapidly.

In hard-facing parts or cutters, the Stellite is easily applied by means of the oxy-acetylene blowpipe. This non-ferrous alloy is especially suitable to resist wear at elevated temperatures because its hardness is inherent and is not the result of heat-treatment. This important property, called "red-hardness," has resulted in the extensive use of the alloy for many applications where heat and abrasion are encountered in regular operations.

The oxy-acetylene process is particularly adaptable for this type of work since at all times careful control can be maintained over the application of the hard-facing alloy. The base metal should be brought merely to a "sweating" heat and the abrasion-resistant alloy allowed to flow over it as does solder on a tinned surface. If this procedure is followed, an almost negligible amount of dilution of the hard-facing material by the base metal will result. Excess dilution will impair the inherent hardness of the alloy.

The foregoing applications of hard-facing are not restricted to a few shops; we understand that this type of work is fast becoming recognized throughout the country. Fleet operators interested in securing further information on the process can obtain same by writing to the Editor of this publication. There's no obligation, of course.

●

Petroleum Plays Part in N. Y. World's Fair

THE petroleum industry is playing no small part in the preliminary construction work for the 1939 World's Fair in New York City. This is readily seen by the fact that nearly 1,000,000 gallons of gasoline and approximately 250 barrels of motor oil and lubricants are being used by the 80 trucks working on the huge excavating project at the fair grounds, according to a petroleum marketer which has contracted to supply fuel and lubricants for this work.

The gigantic task of leveling the Flushing meadows involves moving approximately 4,000,000 cubic feet of dirt. Often hub-deep in mud, these trucks can be seen at work 24 hours a day on short but straining hauls.

M. J. Torpey, Inc., excavation contractors, are emphasizing careful servicing of their trucks to guard against breakdowns and interruptions. The Torpey fleet of 50 trucks and 30 additional hired machines has already been in operation for eight months, during which period it has operated steadily.

Some idea of the magnitude of the excavating job may be had, the oil company points out, when it is realized that these trucks consume 3,000 gallons of gasoline daily. Between 20 and 25 barrels of motor oil and lubricants go into the trucks each month.

Uneven ground and a variety of weather conditions have made the undertaking even more exacting. To help withstand the rigors of operation under such circumstances, the Torpey firm has recently invested more than $5,000 in new tires for these heavy-duty mud-carriers.

PLAY SAFE!

KEEP YOUR BATTERIES CHARGED WITH THE GENUINE

HI-WAY WINCHARGER

REG. U. S. PAT. OFF.

Use lights and plenty of 'em, for your own safety and the safety of others. But be sure your batteries have plenty of power to operate all those lights! Put a genuine Hi-Way Wincharger on every truck *and* every trailer! Have plenty of current to meet all state safety laws!

Hi-Way Wincharger is the easiest, most economical answer to your battery troubles. Mounts on truck or trailer easily in a short time. Connects to either truck or trailer battery. Operates in any speed—22 miles an hour or more. Pours a steady flow of current into your battery. Made in either 6-volt or 12-volt size, by the world's largest makers of wind-driven generating equipment. Fully guaranteed.

DEALERS! Mail coupon for full details of our attractive proposition!

Ask your Dealer, or mail the Coupon!

WINCHARGER CORPORATION
Dept. FO-5-37, Sioux City, Iowa

Please give me all the facts about Hi-Way Wincharger for trucks and trailers. ☐ 6-volt; ☐ 12-volt.
☐ Let me have your dealer proposition

Name .....

Address .....

City ..... *State* .....

Firm Name .....

For BIG Economies and Better Service

CRESCENT Wiry Joe Auto Cables duplicate, in quality, the original equipment they replace but as they are made complete . . . from bare copper to finished product . . . in one plant, eliminating intermediate profits, their price is very low. Crescent Wiring assures trouble-free service and uninterrupted schedules.

ASK your jobber for our new Catalog No. 103. It lists the whole line and includes a handy wiring chart showing the correct sizes of wire to use for every automotive need. If your jobber cannot supply you, address Dept. I.

THE CRESCENT Auto Cable COMPANY
PAWTUCKET, RHODE ISLAND, U.S.A.

LIGHTING HARNESSES · SPOOLED CABLE · LIGHT SOCKET ASSEMBLIES
IGNITION CABLE SETS · BATTERY CABLES · TROUBLE LIGHTS

Largest Independent Manufacturer of Replacement Automative Wiring in U.S.A.

as LOW as $4.60

SPECIAL: Complete special-priced construction sponge rubber cushions (as shown in picture) as low as $4.60. Write for prices on your sizes.

STANDARD: Patented, full-cushion made-to-order Sponge-Aire construction—the ultimate in comfort and economy, available at moderate prices. Write for prices on your sizes.

SPONGE-AIRE SEAT COMPANY, Inc.
BUFFALO, N. Y.

STAR UNIFORMS *for* DRIVERS

(One or One Thousand)

STAR specializes in uniform service for fleet operators from coast-to-coast. . . . Two of our popular styles are illustrated; there are many others. . . . Firm-names or trade-marks are attractively embroidered on each uniform. . . . The fabrics are especially suitable for truck and bus operation and the low prices will surprise you. . . . New Summer Styles now ready!

Write for Free Catalog

STAR UNIFORMS 67 Varick Ave., Brooklyn, N. Y.

Many New Bills in State Legislatures

MORE than 5,000 bills relating to ownership and use of motor vehicles have been introduced in state legislatures since January 1, according to a survey recently completed by the National Highway Users Conference.

With more than a score of legislatures still in session, the volume of automotive measures introduced this year is certain to establish a new record.

Approximately 2,000 of the bills introduced to date deal with special fees and taxes levied upon motorists. More than 600 relate to carrier regulation, while operating restrictions form the subjects of at least 700.

•

S. A. E. Holds "Utility" Meet in Baltimore

HOW post-depression motorized equipment problems are being solved, was explained by J. G. Holtzclaw, president of the Virginia Electric & Power Co., at the Regional Public-Utility Meeting sponsored by the Society of Automotive Engineers, held in Baltimore, Md. last month.

The 26,000,000 users of electricity are more and more utilizing electric refrigerators, ranges, and other appliances which require special truck equipment for service and installation, he said. Equipment sales were up 33 per cent last year over 1935, and are still climbing. Like progress is reported by the gas industry.

Mr. Holtzclaw, who is also vice-president of the Edison Electric Institute, has had an important role in popularizing and extending electric service. As a utility executive whose company operates over extensive territory, he has much knowledge of the important part played by automotive equipment.

A. W. Morton, Koppers Co., American Hammered Piston Ring Div., toastmaster at the opening-day dinner, introduced Mr. Holtzclaw and also presented John A. C. Warner, secretary and general manager of the Society of Automotive Engineers. Dinner Chairman R. C. Hall, Baltimore Transit Co., is treasurer of the SAE Baltimore Section which cooperated with the Society's Transportation and Maintenance Activity in sponsoring this meeting.

Mr. Warner, in announcing the meeting, explained that automotive problems common to public-utility fleets but seldom met in other fields, need to have special treatment. Pole-setters, service-trucks, line-trucks, pole-trailers, ditch-diggers, pipe-layers and other such equipment develop operating and maintenance problems not met in common-carrier, parcel-delivery or other operation, he said.

Safety and operating efficiency stood out among the topics on this two-day program; each was studied from the angle of the public-utility fleet operator. At the Safety Luncheon, J. W. Lord, Atlantic Refining Co., a student of the problem, analyzed the safe driver. An Economy Symposium was addressed by representatives of five major public-utility companies and included such topics as throttle-stops, service and maintenance practice, pooling of passenger-car equipment, non-changing motor oil and pole-trailer brakes.

Oil filters in public utility fleet operation was a subject discussed by Prof. J. I. Clower, Virginia Polytechnic Institute. T. C. Smith, American Telephone and Telegraph Co., spoke on special equipment for public-utility fleets, giving special consideration to standardizing this equipment. Executive control of public-utility fleets was the topic of a paper by F. B. Flahive. Columbia Gas & Electric Co., and W. R. Pol-

lard, Georgia Power Co., concentrated on systems to obtain efficient and economic fleet operation.

Speaking at the economy symposium were O. A. Axelson, Columbia Gas & Electric Co.; C. D. Peebles, Carolina Power & Electric Co.; J. Y. Ray, Virginia Electric & Power Co.; E. W. Jahn, Consolidated Gas, Electric Light & Power Co.; and Daniel Durie, West Penn Power Co.

●

Water Now Used to Inflate Tires

PNEUMATIC tires are now being partially filled with water to improve traction! Not the tires you use on your automobile, of course, nor those on your trucks, buses or taxicabs. But in farm-tractor tires, those huge rubber casings which roll over the fields, pulling plow or harrow, doing the work horses once did, according to engineers of The B. F. Goodrich Company, Akron, Ohio.

After several years of experiment with tires on farm-tractors and other farm implements, one of the greatest problems was to keep the tires from bouncing around, and thus losing their traction, while they were pulling heavy equipment over rough, uneven ground.

Metal weights were in many cases attached to the wheels to weight them down, but these were an additional expense to the tractor operator. Putting them on and taking them off was a constant inconvenience.

So the Goodrich engineers, after more than a year's experiments, now recommend the use of water in farm tractor tires. Use of water provides normal cushioning without rebound or bouncing of the tractors or other equipment. They give the tractor greater tractive ability and better riding qualities, it is claimed.

To facilitate putting the water into the tires, the Goodrich engineers have developed a simple, inexpensive "adapter," one end of which is fitted to a garden hose and the other to the tire valve.

Ordinary city water pressures of from 30 to 60 pounds are usually adequate to fill the tires. Filling may also be accomplished from a tub or barrel by gravity flow, or by means of an inexpensive pressure tank designed by Goodrich where no water pressures are available.

Many farm tractors equipped with rubber tires are operated in freezing weather, and for these Goodrich engineers recommend solutions of commercial calcium chloride, ordinarily used for dust-laying on roads.

The tire should be filled with liquid until the level reaches the inflation valve, with the tire so turned that the valve is at the top. After that amount has been put into the tire, inflation with air should be effected, just as in ordinary practice. The air pressures in tires in which water is used are the same as the regular pressure. The amount of water put into the tire ranges from 13.80 gallons for the 7.50-24 four ply size to 53.30 gallons for the 12.75—32 six ply size.

●

Nine-Year No-Accident Drivers Rewarded

SIX drivers of the Eastman Gelatine Corporation of Peabody, Mass., who have driven a total of nine years without a reportable accident, have recently been presented safe-driving seals by the American Policyholders' Insurance Company, which cooperates with its policyholders in a program of highway accident prevention.

Two-year seals were presented to Leo W. Daley, Corrodo Pirrotta and Peter T. Cares, and one-year award of merit cards to Frank J. Rossi, Edward J. Driscoll and Harry C. Tyndall.

In the Michiana Filter the complete cartridge is replaceable.

Added to the Michiana Line of Oil Filters

Incorporating the Duo-Flo principle as in the element for the H-W Filter, this model is of the cartridge type for easy replacement anywhere. No re-packing is required—the used cartridge being replaced with a complete new unit.

This Michiana Duo-Flo Filter is already in use on thousands of engines and has given further evidence of the unusual filtering efficiency and economy of the Duo-Flo design.

Duo-Flo Filtering Is the Reason for Bigger Oil Savings

The Duo-Flo is really two filters in one—which assures greater capacity, more thorough filtering and longer mileage before requiring service.

Write for new Bulletin 337-F—it contains the complete story on Duo-Flo oil filtering . . . MICHIANA PRODUCTS CORP., Michigan City, Indiana.

Diagram above shows how oil is passed through the upper and lower filter chambers, cleaned oil meeting at the center and passing down and out to the motor.

The Duo-Flo Element for H-W Filter can be re-packed with Michiana "Wastex" filtering material by removing the perforated washers at the top and bottom.

The shell of the H-W Filter to the right is cut away to show how the Duo-Flo Element is installed in this filter.

USE VEEDER-ROOT HUB ODOMETERS

In order to know where cost-cutting can be done—in gasoline, oil, tires, repairs—you need *accurate* mileage records. The kind of records that are obtainable from Veeder-Root Hub Odometers.

These recording instruments can be adjusted to agree *to a tenth of an inch* with all changes in wheel and tire dimensions. They clock up every mile a truck goes—both forward and backward.

Veeder-Root Hub Odometers are built to stand up under the hardest service. Dust and dirt cannot get inside. Tampering is easily detected.

Write for proof of the savings these instruments are bringing to others.

VEEDER-ROOT Inc.
HARTFORD, CONN., U. S. A.

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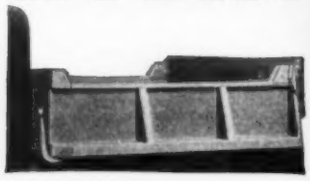

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THE BURCH CORPORATION
Write for Literature CRESTLINE, OHIO

Sharing Profits With Employees

A HUNDRED years ago a small employer of labor in France conceived the idea of distributing a part of his earnings to those who worked for him to give them an interest in the success of his business. Since that time employee profit-sharing plans of many varieties have spread throughout the business world. The idea has had a checkered career. Interest in it has died down occasionally only to be revived again. Some companies use it with success today. Many companies have tried the plan, only to discontinue it after a period.

A current wave of interest among business executives in employee profit-sharing is reflected in a survey by the Policyholders Service Bureau of the Metropolitan Life Insurance Company to determine recent trends and present practices as revealed by the experiences of representative employers.

There is little agreement, according to the survey report, as to what really constitutes profit-sharing. Some executives use the term to apply to various types of bonuses or to the purchase of company stock by employees. There is an increasing tendency, however, to define profit-sharing as a voluntary agreement in which the employee receives a share, fixed beforehand, in the profits of the business.

As viewed by most authorities the usual purpose of employee profit-sharing plans is to create a mutuality of interest between capital and labor and to give employees an incentive to help in maintaining or increasing the company's profits. The survey revealed that successful use of the practice in any specific case appears to depend upon conditions peculiar to the individual company. The amount and stability of a company's profits are found to be factors of prime importance.

In commenting on the correct approach to profit-sharing the report says, "It is generally recognized that profit-sharing is not a panacea for industrial ills; it is rather a part of an industrial relations program. . . . Similarly, it is maintained that the profit-sharing program should be fitted into and not conflict with a company's program of employee security."

"*Sharing Profits with Employees,*" the title of the insurance company's report, describes the different types of profit-sharing plans, outlines their historical background, and discusses their purposes and theories. It then takes up the details of organizing and administering a program covering such subjects as eligibility for participation, the amount of profits to be shared, the basis of distribution, the form and time of distribution, etc. Case histories of several typical plans in use

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Derby, Conn. **Dept. F.**

today are given in detail.

A copy of *"Sharing Profits with Employees"* may be obtained from the Policyholders Service Bureau, Metropolitan Life Insurance Company, One Madison Avenue, New York, N. Y. . . . There is no charge.

•

Driver License Laws Hailed by Motor Industry

ADOPTION of driver license laws in eight states thus far this year, with the possibility of several more before the end of current legislative sessions, was declared to be the greatest contribution to highway safety thus far in 1937, by Alvan Macauley, President of the Automobile Manufacturers Association.

"The wholesome success of this effort to bring as many states as possible up to standard as regards driver licensing is particularly gratifying to our industry," said Mr. Macauley. "Through the Automobile Manufacturers Association the entire industry joined in the effort of the American Association of State Motor Vehicle Administrators, the National Safety Council, the General Federation of Women's Clubs, the American Legion, the National Congress of Parents and Teachers, the American Automobile Association, the National Grange and a host of others to obtain the enactment of these vitally necessary laws."

States in which new laws have already been adopted this year are: Arkansas, Georgia, Indiana, Kansas, Maine, New Mexico, North Dakota and Tennessee. Driver license bills are now pending in Illinois, Michigan, Minnesota, Missouri, Nebraska, Oklahoma, Texas and Wisconsin. The total of 28 states and the District of Columbia now enjoy standard license laws, whereas fewer than half of the states had such laws in 1936.

•

Buses Establish Notable Safety Records

SOME remarkable records for safety in operation of buses are revealed by reports on the safety contest which the National Association of Motor Bus Operators is conducting.

Reports for a recent month show that 26 common-carrier bus companies operated over a combined total of 788,515 miles during the month without accident. Fourteen other companies which reported one accident each during the month operated over a total of 1,192,752 miles. The reports also indicate that city buses have more accidents in proportion to mileage than intercity buses.

IT'S HIGH TIME TO CLEAN OUT WITH *Sani-Flush*

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MAGNUS CLEANERS

Sees Increased Use of Governed Cabs

THE use of governors on taxicabs has grown rapidly during the past year, states a prominent authority on the subject. In commenting on the growth of this practice, he says, "For the number of vehicles in use, no class of operator has a better accident record than the taxicab operator, generally speaking. As a group, the taxicab drivers are probably more skilled than any other type with the possible exception of highly trained race drivers. Because of the nature of their work and the necessity for prompt arrival at their destinations, taxicab drivers acquire an uncanny ability to negotiate traffic.

"Operators of taxicab fleets insist on good safety records on the part of their drivers and give every assistance to the driver in this respect.

"The growing trend in the use of governors on taxicabs is just another effort on the part of the cab fleet operators to promote safety. Besides this, however, records have proven over a long period of time that operating costs are reduced to such a degree that the governor is more than paid for by the actual saving in fuel, oil and repairs. One taxicab fleet in Milwaukee recently equipped all of its vehicles with governors limiting speeds to 30 miles-an-hour and another large fleet in the same city will do so shortly. In New York, Chicago and other large cities a growing number of taxicabs are being limited to the 30 miles-an-hour speed by their governors, with resulting savings to their owners.

"One interesting angle recently given by a taxicab operator is that the governor furnishes a ready answer for the driver who is asked by a 'fare' to drive at more than the legal speed in order to make a train connection or keep an appointment. Taxicab drivers as a class do not like to get instructions to over-speed and with governors on their cars, they have a ready excuse."

●

Many Schools Depend on Buses

MORE than 3,100,000 children are transported to and from schools in buses, according to the National Association of Motor Bus Operators. A total of 31,912 buses are in this service, which provides facilities for pupils of approximately 80,000 schools.

●

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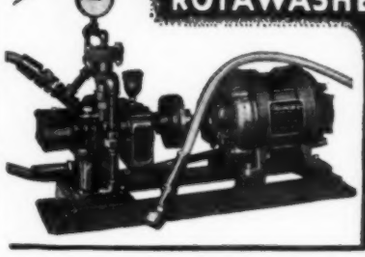


CLEANS CARS BUSSES TRUCKS FASTER BETTER *Send for details*

THE ROTAWASHER CORP.
Dept. FO. 118 E. St. Clair Ave. Cleveland, Ohio

State Penalized for Tax Diversion

PENALIZATION of Maryland by the Federal Government for using highway funds for non-highway purposes centers attention upon the fact that the Bureau of Public Roads now is investigating expenditures of gasoline-tax proceeds and motor-vehicles fees in every state.

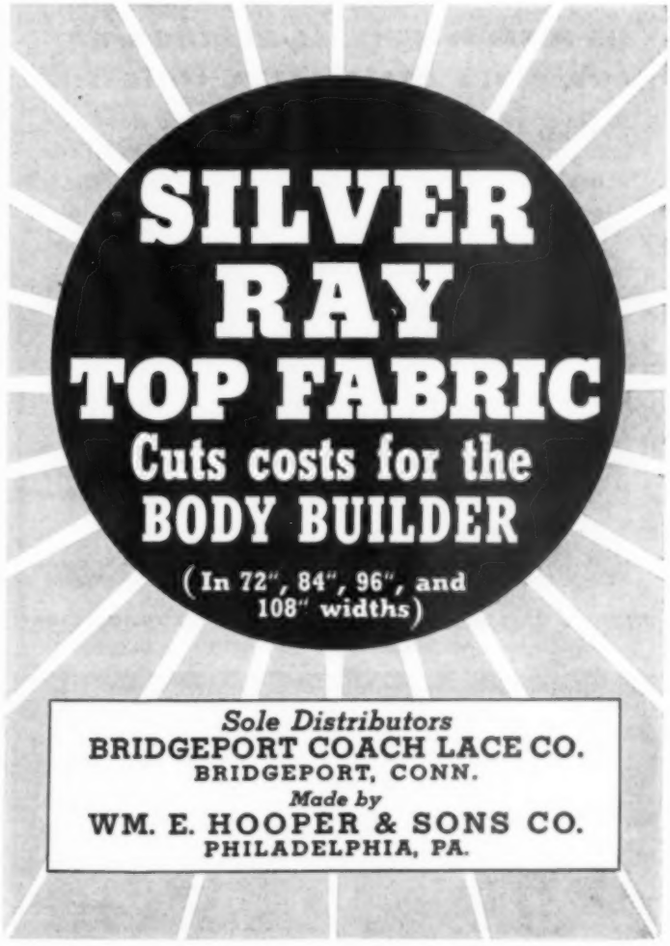
Maryland has been told it will be penalized for diversion of its highway funds under terms of the Hayden-Cartwright Act which provides that the Federal Government may withhold as much as one-third of Federal-aid money due to a state when that state practices highway-fund diversion.

The Maryland State Road Commission recently was notified by Thomas H. MacDonald, Chief of the Bureau of Public Roads, that Maryland's share of Federal-aid funds for 1937 will be reduced $341,666.66, or one-third, because that State has spent approximately $4,000,000 of highway funds for general purposes.

●

Special Truck-Bus Taxes Soar

MOTOR trucks and buses operated for hire paid $12,421,000 in special taxes in 1935 alone, in addition to paying millions of dollars in state and federal gasoline taxes and state license fees, according to U. S. Bureau of Public Roads reports. The 1935 cost of these special taxes represents an increase of nearly one-third over the $9,402,000 cost reported by the Bureau for 1934.



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QUICK FACTS ABOUT SILVER-SHEATHED

1. Sterling's Silver-Sheath (U.S. Pat. 1,987,508) resists oil, moisture and corona far longer than ordinary cable.
2. Withstands intense heat 16 times longer.
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ADVERTISERS INDEX:

A

A C Spark Plug Co. 33
Acheson Colloids Corp. 63
Aluminum Co. of Amer. ..... 2nd Cover
American Brakeblok Corp. ..... —
American Cable Div. 83
Arrow Safety Device Co., Inc. 64
Auditorium Hotel 84

B

Bear Mfg. Co. ..... —
Belden Hotel 84
Bendix Products Corp. ..... —
Bendix-Westinghouse Automotive Air Brake Co. 25
Blood Bros. Mach. Co. ..... —
Briggs Clarifier Co. 80
Burch Corp. 78

C

Champion Spark Plug Co. 3
Chevrolet Motor Division 31
Christiana Machine Co. ..... —
Cleveland Pneumatic Tool Co. 66
Crescent Cable Co. 76
Cummins Engine Co. 29

D

Dietz Co., R. E. 68
du Pont de Nemours & Co., E. I. 47

E

Eaton Mfg. Co. 11
Electric Storage Battery Co. 20
Ethyl Gasoline Corp. 45
Evans Products Co. 19
Exide Batteries 20

F

Ford Motor Co. ..... 3rd Cover
Four Wheel Drive Auto Co. ..... —
Fyr-Fyter Co. 74

G

General Motors Truck Co. 9
General Tire & Rubber Co. ..... —
Gerstenslager Co. 80
Globe-Union, Inc. ..... —
Goodrich Co., B. F. 27
Goodyear Tire & Rubber Co. 17

H

Hall Mfg. Co. 69
Hanover Uniform Co. 69
Haskelite Mfg. Co. ..... —
Hoof Products Co. 65
Hooper & Sons Co., Wm. E. 81
Hygienic Products Co. 79

I

International Harvester Co. 14

K

K-D Lamp Co. 81

L

Lang Industries 61
Larkin Co., Inc. 73
Lathan Company, Inc. 79
Lincoln Electric Co. 72
Linde Air Products Co., The 13
Little Giant Products, Inc. ..... —
Luce Mfg. Co. 81

M

Mack Trucks, Inc. ..... Back Cover
Macmillan Petroleum Corp. 35
Magnus Chemical Co. 80
Michiana Products Corp. 77
Midland Steel Products Co. 70
Miley Co., L. J. ..... —
Motor Improvements, Inc. ..... —

N

New Departure Mfg. Co. ..... —

O

Oakite Products Corp. 8
Oxweld Acetylene Co. 13

P

Packard Electric Co. 39
Philadelphian Hotel 84
Pittsburgh Plate Glass Co. (Glass Div.) 12
Plymouth Div. of Chrysler Corp. ..... —
Prest-O-Lite Co., Inc., The 13
Pyrene Mfg. Co. 67

R

Reo Motor Car Co. ..... —
Rotawasher Corp. 80

S

Scovill Mfg. Co. Inc. (A. Schrader's Son Div.) 60
Service Recorder Co. 62
Sherwin-Williams Co. ..... —
S K F Industries, Inc. 80
Socony-Vacuum Oil Co. 7
Sponge-Aire Seat Co. 76
Sponge Rubber Products Co. 78
Standard Oil Co. of Indiana ..... —
Star Uniforms 76
Sterling Cable Corp. 82

T

Texas Company ..... 4 & 5
Timken-Detroit Axle Co. 71
Truck Equipment Co. ..... —

U

Union Carbide & Carbon Corp. 13
Union Carbide Sales Co. 13
United-American Bosch Corp. 10
United States Steel Corp. 51

V

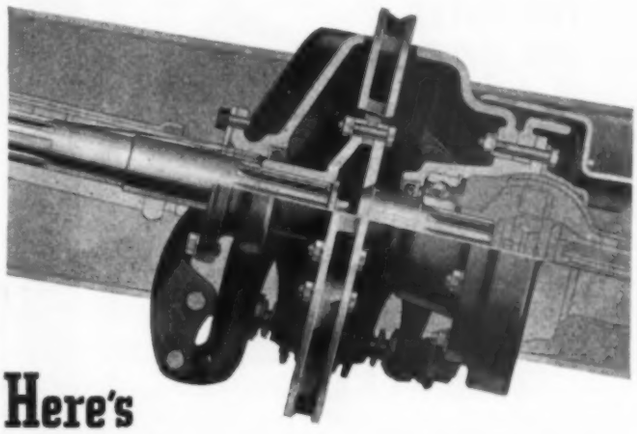
Van Norman Machine Tool Co. 6
Veeder-Root Co. 78
Vellumoid Co. ..... —
Visco Meter Co. 79

W

Watson Co., H. S. 41
Weatherhead Co. ..... —
White Motor Co. ..... —
Wilkening Mfg. Co. ..... —
Wincharger Corp. 75

Z

Zenith Carburetor Co. ..... —



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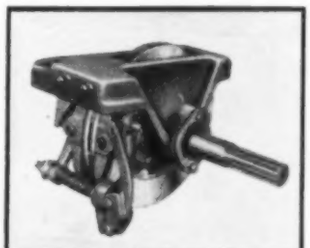
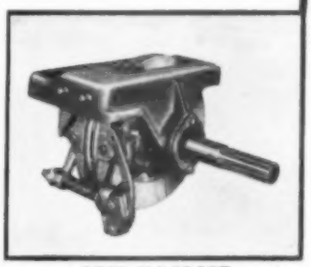
The ventilated discs of this brake dispel friction heat. The braking action is quiet, smooth, powerful and positive—in direct ratio to the effort exerted on the brake lever. This brake is quickly and easily installed—and as easily serviced. Lining wear is slow and even. When relining is necessary it can be done in a few minutes by any driver.

The safety this brake provides, far exceeds its low cost. Ask us to give you the details.



CHEVROLET BRAKE
Three-quarter view



FORD V-8 BRAKE
Three-quarter view

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Motor Vehicles Perform in Emergencies

ABILITY of motor transportation to render aid in great degree during periods of emergency has been broadly and dramatically demonstrated in recent months.

Service rendered through use of motor vehicles during the floods in the mid-west and south were outstanding and broadly publicized. Though it naturally did not receive such nation-wide attention, assistance provided by trucks when Southern California's citrus crop was threatened by freezing weather ranks high in importance.

•

Variety in Roads of the World

WARREN VAN DYKE, Secretary of Highways in Pennsylvania, reports that all kinds of materials are being tried out on the world's highways.

There is cotton, for instance. Two-yard strips of coarse cotton are sandwiched in between layers of crushed stone and asphalt.

There is the tin can road. An engineer in Georgia dumped old tin cans on a road, rolled them flat with a steam roller, and packed sand and soil over them.

In Queensland, Australia, rubber is used for some of the pavements.

In Paris they are experimenting with various grades of iron.

India has certain roads treated with a mixture of surface oil and molasses.

Then there are the "aluminum roads" in Germany. Powdered aluminum is mixed with the usual surface of tar or asphalt, offering an unusual advantage—it tends to prevent the softening of the road in hot weather. Also resists corrosion and shows up well at night.—*Aluminum News Letter.*

•

Four More Safe Drivers Get Awards

SAFE driving seals have been presented to four employees of the Davis and Furber Machine Company of North Andover, Mass., recently by the American Policyholders' Insurance Company which, in cooperation with its policyholders, is conducting a program of highway accident prevention among employee drivers.

The honor drivers are: George Emery, Benjamin Martin, and George Scott, each with a nine-year safe driving record; and Albert Gagnon, whose record has been accident-free for the past three years.

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Some trucks give Performance. Others offer Economy. Ford V-8 Trucks give BOTH!

If your loads are heavy, if your job calls for high road speeds . . . a Ford V-8 Truck or Commercial Car with the 85-horsepower engine will give you outstanding economy for your requirements. If your loads are light, if your units are used for house-to-house delivery . . . the thrifty new 60-horsepower V-8 engine will give you the performance you need and truly amazing gasoline mileage.

Your Ford dealer will be glad to arrange an "on-the-job" test of an 85 or 60 horsepower Ford V-8 Truck or Commercial Car. With your own loads, under your own operating conditions, you can test BOTH V-8 engines . . . and select the one best fitted for your individual needs. Before you buy ANY truck or commercial car at ANY price, make this test. It may mean the difference between high and low operating costs. Call your Ford dealer today for full details.

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Mack